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1.	**SERVICE MANUAL P326.0001.01**
2.	**DRAWINGS P326.0001.01**
3.	**SPARE PARTS LISTS P326.0001.01** Type independent spare parts Type dependent spare parts
4.	**MANUAL P326.0001.01** Technical Data Chart of Types Exchange of wearing parts
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9.	
10.	
11.	**NEWS**
12.	**NOTES**

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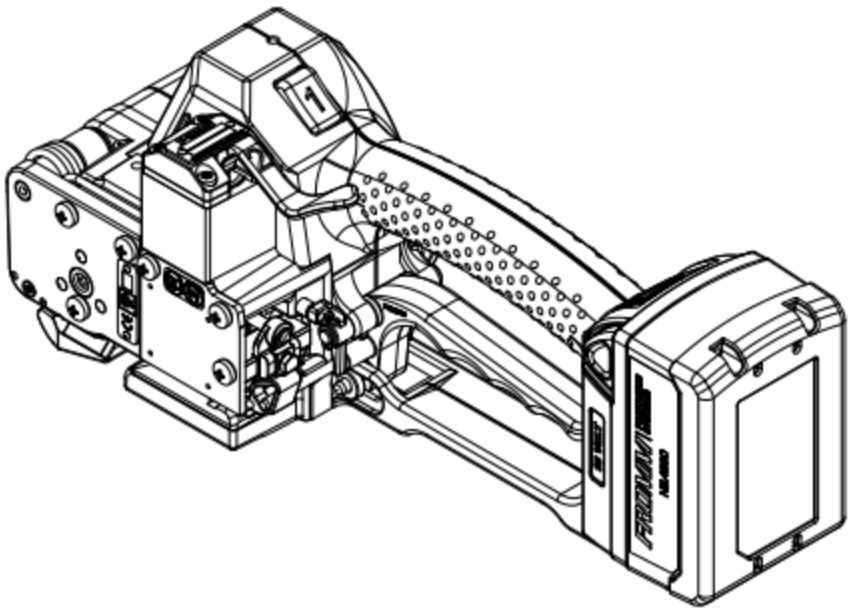
FROMM

SERVICE MANUAL

BATTERY - POWERED PLASTIC STRAPPING TOOL

MODEL P326.0001.01

Manual for authorized dealers and service points



INDEX PAGE

1.1 ACCESSORIES 1-3
1.1.1 Battery . . . 1-3
1.1.2 Battery chargers . . . 1-3
1.1.3 Battery tester . . . 1-3

1.2 TECHNICAL DETAILS 1-3
1.2.1 Electric schematic ELS.1044 . . . 1-3
1.2.2 Connecting plan. . . . 1-4
1.2.3 Strap tension . . . 1-4

1.3 CONVERSION PARTS P326 1-5
1.3.1 Conversion parts: strap width . . . 1-5
1.3.2 Conversion parts: strap thickness . . . 1-5

1.4 PERIODIC MAINTENANCE AND CONTROL 1-6
1.4.1 Procedure . . . 1-6
1.4.2 Troubleshooting. . . . 1-7
1.4.3 Battery test . . . 1-9
1.4.4 Checklist . . . 1-9
1.4.5 Glueing rules . . . 1-9
1.4.6 Lubrication rules . . . 1-10
1.4.7 Assembly information . . . 1-11

1.5 RECOMMENDED SPARE PARTS 1-15

1.6 ACCESSORY TOOLS 1-16

1.7 USE OF ACCESSORY TOOLS 1-17

1.8 ORDERING SPARE PARTS 1-21
1.8.1 Ordering manuals . . . 1-21
1.8.2 Ordering address. . . . 1-21
1.8.3 Finding out of the tool type (item number), the serial number and the version number: . . . 1-21

1.9 SERVICE ADDRESS 1-22

1.10 CHART OF TYPES 1-22

1.1 ACCESSORIES

1.1.1 Battery

Use only original Fromm batteries N5.4330 (Li-Ion).

1.1.2 Battery chargers

The battery charger must be ordered separately according to the table mentioned below.

Item-No.	Voltage / frequency	Admitted for country
N5.4443	220 - 240V / 50 - 60Hz	A, B, BG, BIH, BOL, BR, BY, CH, CL, CZ, D, DK, DZ, E, EAS, EST, ET, F, FIN, GE, GR, H, HK, HR, I, IL, IND, IR, IRQ, IS, JOR, KSA, KWT, L, LAR, LT, LV, MA, MC, MK, MOC, N, NL, P, PK, PE, PL, PRC, PY, RA, RCH, RI, RL, RO, ROK, ROU, RP, RUS, S, SK, SLO, SYR, THA, TN, TR, UA, UAE, YU, YV, (BRN), (BRU), (CY), (EAK), (EAT), (GB), (IRL), (M), (MAL), (OM), (SGP), (Y), (Z), (ZA), (ZW)
N5.4447	120V / 50 - 60Hz	BR, C, CDN, CO, CR, DOM, EC, GCA, J, JA, KSA, LB, MEX, NIC, PA, Puerto Rico, RC, RP, USA, YV
N5.4445	220 - 240V / 50 - 60Hz	AUS, NZ

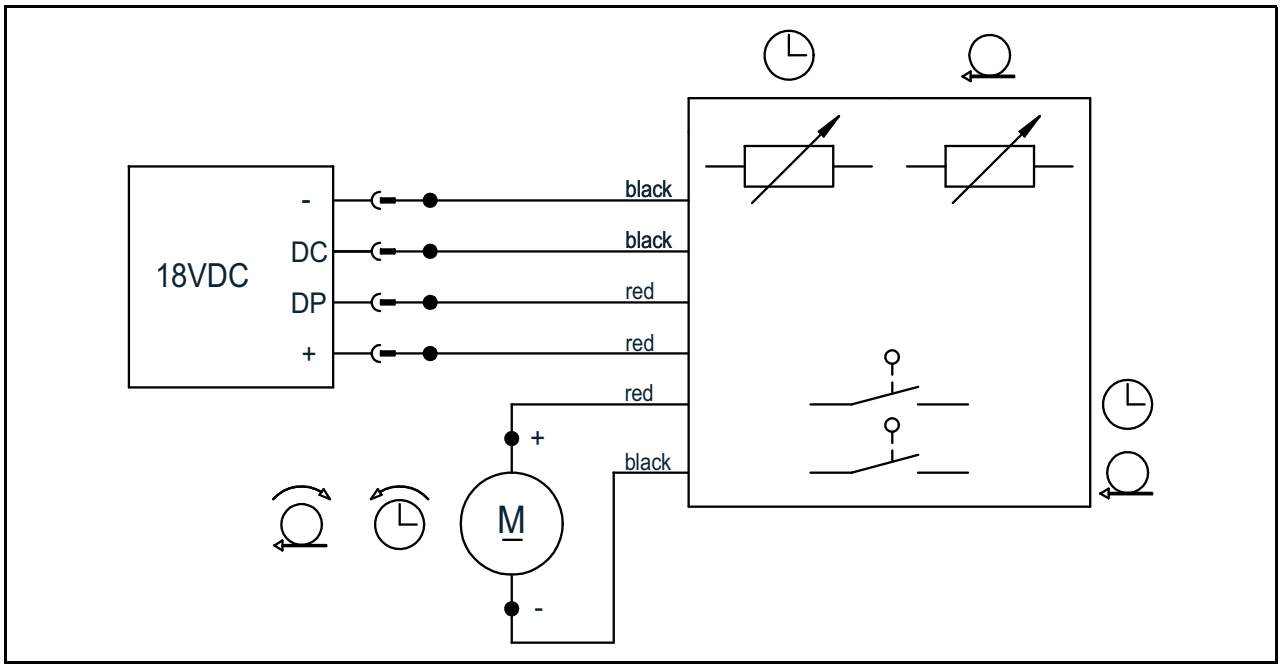
(..) = an adaptor is required

1.1.3 Battery tester

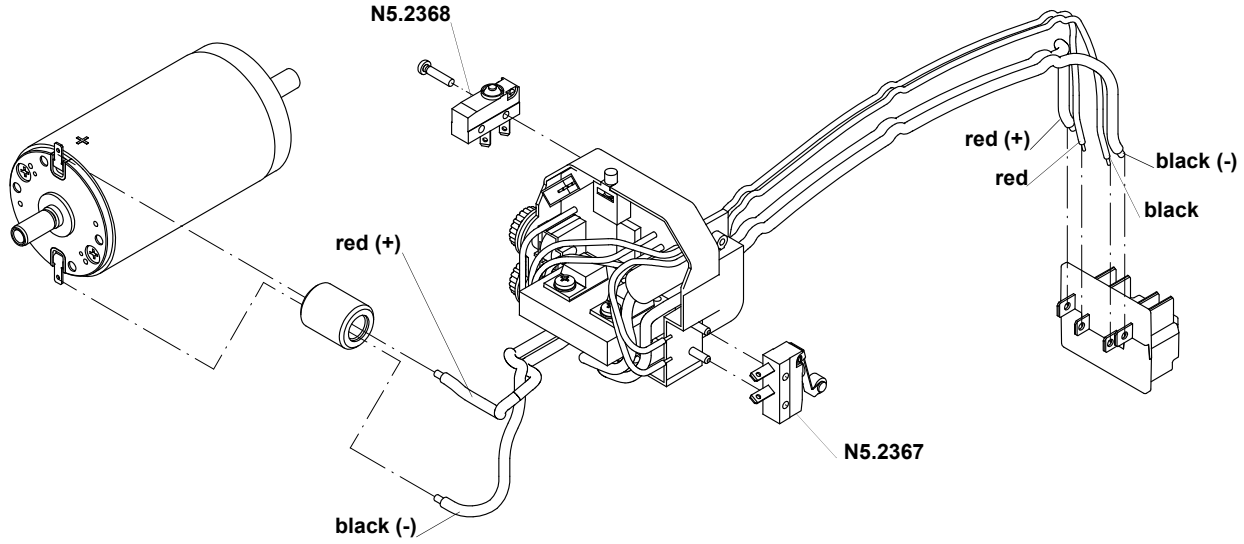
For testing the batteries order battery tester N7.5146 and adapter N7.5145.
Both parts are required for testing the battery.

1.2 TECHNICAL DETAILS

1.2.1 Electric schematic ELS.1044



1.2.2 Connecting plan



To connect the electronic to the motor see also 1.4.7 Assembly information.

1.2.3 Strap tension

The tension force values mentioned in the operation manual (400-2400N) are not achievable with each strap. They depend on following factors:

- Hardness of the package,
  the maximum tension force values are achievable with hard packages.
- Elongation and creep properties of the plastic strap,
  the maximum tension force values are achievable by using plastic straps with a low elongation.
- Surface quality of the plastic strap,
  the maximum tension force values are achievable with waxed and embossed straps.
- Strap width, strap thickness,
  the maximum tension force values are achievable with thick and wide straps.

1.3 CONVERSION PARTS P326

When changing strap thickness or strap width the following parts must be exchanged:

1.3.1 Conversion parts: strap width

	10mm	11.1mm	12mm	12.7mm	13mm	15mm	15.5mm	16mm
Guide pin	P30.1156	P30.1158	P30.1156	P30.1157	P30.1158	P30.1159	P30.1160	P30.1161
Guide pin	P30.1162	P30.1164	P30.1162	P30.1163	P30.1164	P30.1165	P30.1166	P30.1167
Guide case	P32.1205	P32.1205	P32.1206	P32.1206	P32.1206	P32.1206	P32.1206	P32.1206
Strap stop	P32.2082	P32.2083	P32.2084	P32.2085	P32.2085	P32.2086	P32.2087	P32.2087
Strap guide	P32.2089	P32.2090	P32.2091	P32.2095	P32.2095	P32.2092	P32.2096	P32.2096

1.3.2 Conversion parts: strap thickness

	0.4-0.64mm	0.65-1.05mm
Tensioning wheel	P32.1219	P32.1220
Gripper	P32.1222	P32.1225
Gripper	P32.1223	P32.1226
Gripper	P32.1224	P32.1227
Steel insert	P32.1201	P32.1202

Attention!
When converting tools always change the item number on the type label

Replace following parts:
Type label N43.9190
2 x hammer head bolts N2.4902

Enclose the suitable operation manual with the tool after each conversion
(see paragraph 1.8.1 Ordering manuals).

1.4 PERIODIC MAINTENANCE AND CONTROL

(Carry out 12- months cycles doing one shift work. Doing more shift work respectively more often.)

1.4.1 Procedure

Before using check tool for following possible faults:

- Visual test of the tool for loose, lost or damaged parts
- Clean all dirty parts of the tool, especially strap abrasion in the tensioning or the welding unit by using compressed air. (Never use any hard tools like a wire brush or a screw driver for cleaning)

Carry out a test strapping and check following:

- Insertion of the strap
- Strap feed and strap tensioning
- Tensioning force adjustment (see operation manual P326)
- Cutting of the upper strap
- Welding time adjustment (see operation manual P326)
- Seal quality (see operation manual P326)
- Function of the LED - display

Proceed according to paragraph 1.4.2 after a fault appears.

Attention!

Remove battery from tool before each maintenance work.

For exchange of wearing parts see operation Manual P326.

Never use water or solvents for cleaning the tool’s surface.

1.4.2 Troubleshooting

Ensure before each tool repair that the battery is charged and the tool's specific strap is used

SYMPTOM	CAUSE	REMEDY
Tool doesn't work at all	Battery is empty or defective	Charge or replace battery
	Contact problems caused by a broken battery housing	Replace battery
	Contact problems caused by a damaged insertation part N51.2194 or damaged motor housings P32.2079 and P32.2080	Replace cover insertation part or motor housing
	Contact problem of the internal wires	Check contacts and fix them if required or change defective parts
	Defective circuit board	Replace circuit board
	Defective motor P32.2078	Replace motor
Tool doesn't tension	Tensioning wheel is dirty or worn	Clean tensioning wheel or replace it, don't use any hard objects for this (see operation manual P326)
	P32.1051 is not meshing with P32.1048, because spring N2.5822 is defective or parts are dirty	Replace spring N2.5822, clean dirty parts
	Faulty tensioning wheel or tensioning wheel is assembled reversed	Correct assembling (see operation manual P326)
	Grippers are dirty, worn or wrongly assembled	Replace grippers, clean them or assemble correct, don't use any hard objects for this (see operation manual P326)
	Gearing parts from the tensioning gear are defective	Check tensioning gear and replace defective parts
	Defective circuit board	Replace circuit board
	Micro switch N5.2368 for tensioning is defective	Replace micro switch
	Defective gear bearings	Replace bearings
	Defective tensioning body	Replace tensioning body
	Needle free wheeling in gear wheel P32.0156 or in conical gear wheel P32.0151 assembled reversed or defective	Assemble the needle free wheeling correct or replace it
Tensioning wheel turns back immediately after the tensioning cycle	Defective needle free wheeling N3.4509 in P32.0156	Check parts and replace if necessary

SYMPTOM	CAUSE	REMEDY
Tool doesn't weld	Welding gripper P32.1053 is dirty or worn	Replace or clean welding gripper, don't use any hard objects for this (see operation manual P326)
	Welding stop gripper P32.1203 is dirty or worn	Replace or clean welding stop gripper, don't use any hard objects for this (see operation manual P326)
	Damaged housing parts	Replace housing parts
	Defective circuit board	Replace circuit board
	Pressure spring N2.5294 defective	Replace pressure spring
	Needle free wheeling N3.4509 in P32.0150 defective or assembled reversed	Assemble the needle free wheeling correct or replace it
	Gearing parts of the welding gear are defective	Check welding gear and replace defective parts
	Micro switch N5.2367 for welding is defective	Replace micro switch
	Defective gear bearing	Replace bearing
Tool badly cuts the strap or doesn't cut at all	Cutter is worn or damaged	Replace cutter (see operation manual P326)
	Wrong adjustment of the coupler P32.1250	Check adjustment and readjust if necessary (see operation manual P326)
	Welding gripper is worn	Replace welding gripper (see operation manual P326)
	Welding time too short	Change adjustment (see operation manual P326)
	Defective pressure spring N2.5237	Replace pressure spring
Tool switches off after a few strappings (Displaying empty battery)	Battery defective or empty	Check the battery and change defective batteries
Gear noise	Tensioning or welding gear is worn	Check component parts and replace defective ones

1.4.3 Battery test

For testing the batteries order battery tester N7.5146 and adapter N7.5145.
Both parts are required for testing the battery.
The use is described in the instruction manual of the battery tester.

- Li-Ion-Batteries 18V / (3Ah) must be replaced at a capacity less than 60% (1,8Ah).

1.4.4 Checklist

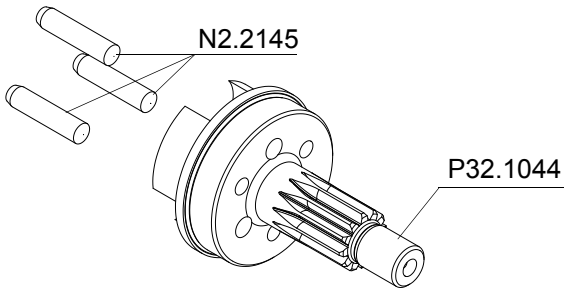
Carry out some test strappings and check following tool components.

- Inserting of the strap
- Insert battery in the tool and check function of the LED-display (see operation manual P326)
- Strap feed and strap tension
- Tension force adjustment (see operation manual P326)
- Cutting of the upper strap
- Welding time adjustment (see operation manual P326)
- Seal quality (see operation manual P326)
- Function of the LED-display (see operation manual P326)
- Correct type label

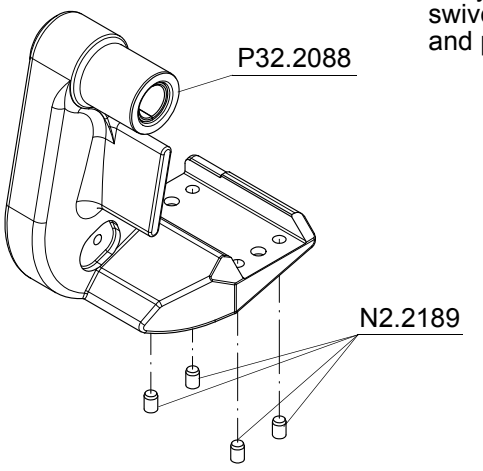
1.4.5 Glueing rules

Following parts have to be glued with **LOCTITE 603**:

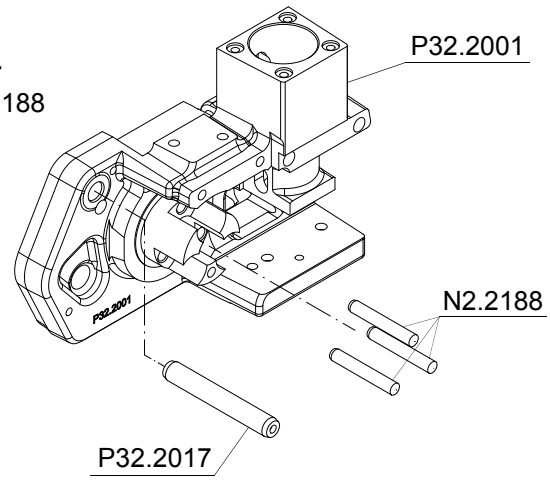
Planet shaft P32.1044
with the parallel pins N2.2145.



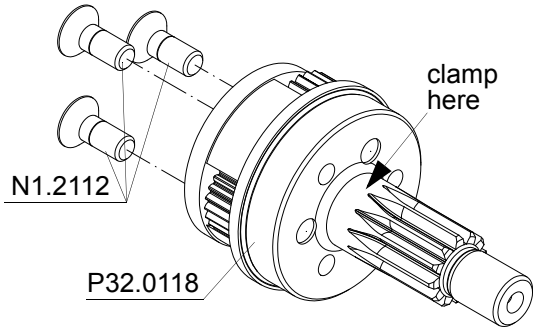
Tensioning body P32.2088
with the parallel pins N2.2189



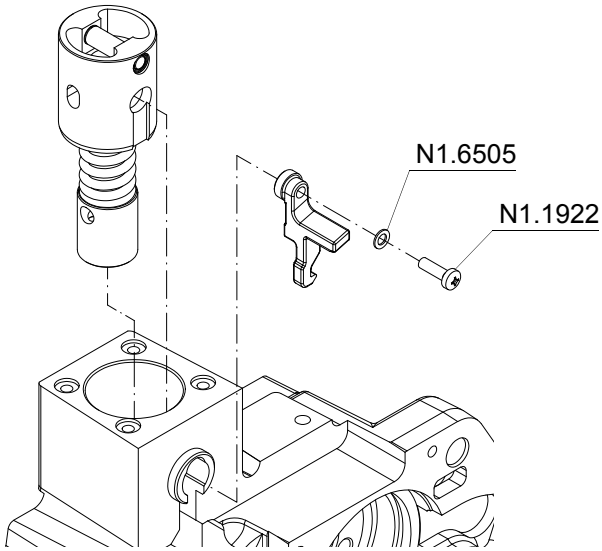
Body P32.2001 with
swivel shaft P32.2017
and parallel pins N2.2188



Additional the screws N1.2112 have to be glued with the idler step P32.0118 using **LOCTITE 222.**
Don't clamp the planet shaft on the pinion while loosening or tightening the screws N1.2112.



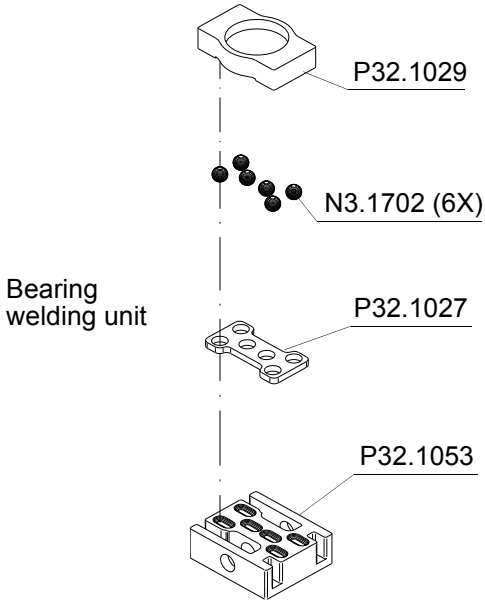
Glue safety washer N1.6505 on both sides with **Loctite 243**.
There should as less as possible glue been applied on the thread of the screw N1.1922. Therefore please move the safety washer on the screw before applying the glue.



1.4.6 Lubrication rules

All gear parts have to be lubricated with **MOLYKOTE BR2 PLUS** grease.
Lubrication interval: While each maintenance or after 12 months at the latest.

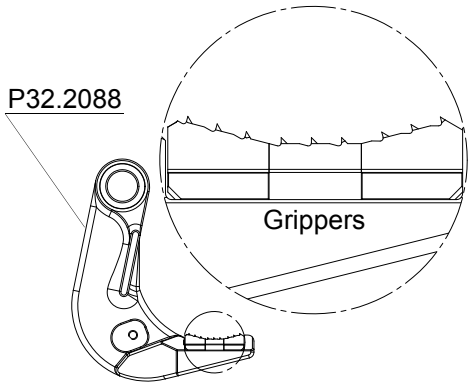
All bearing parts of the welding unit have to be cleaned and lubricated with **Klüber Isoflex Alltime SL2** grease while each maintenance.
Lubrication interval: While each maintenance or after 12 months at the latest.



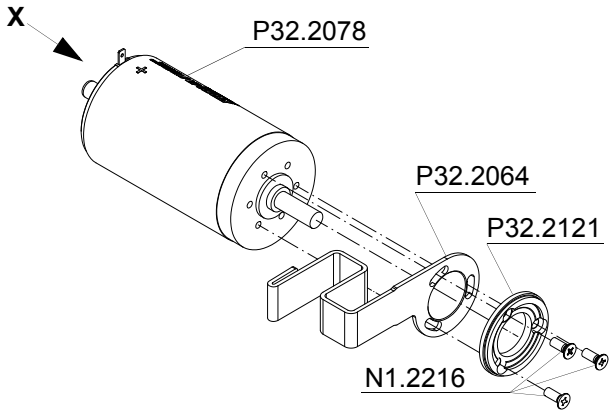
All other parts have to be greased due to the explosion drawing.
Lubrication interval: While each maintenance

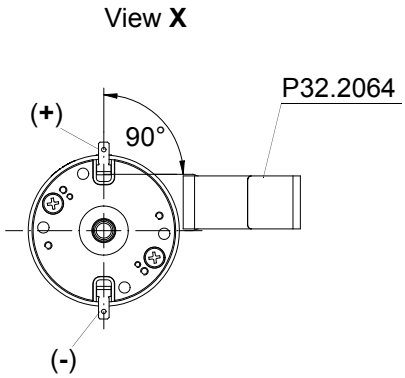
1.4.7 Assembly information

By installing the grippers into the tensioning body P32.2088 it must be observed the direction of the teeths.(look at the picture)

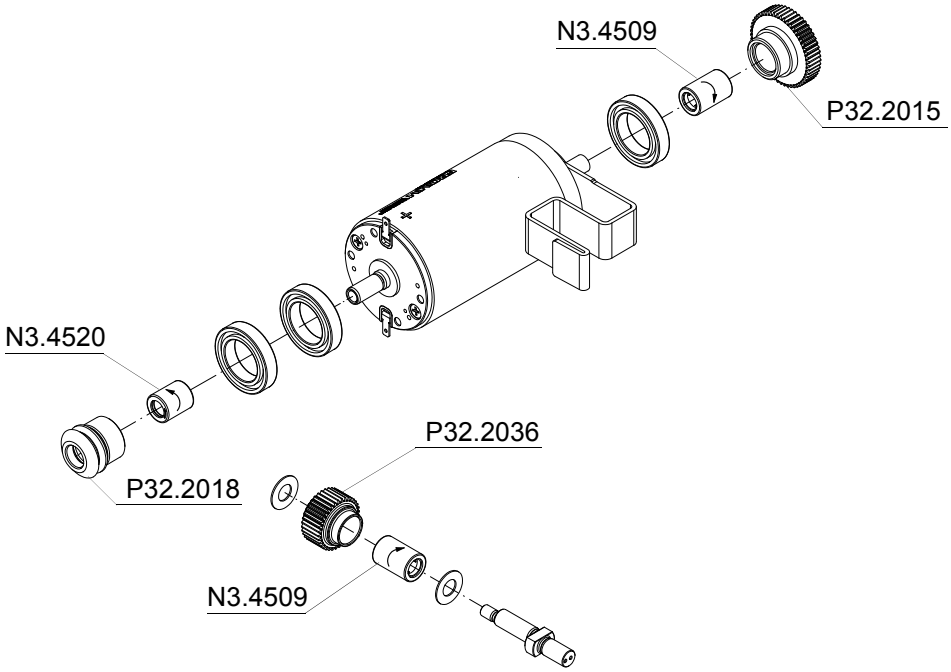


Like imaged the connections of the motor P32.2078 must be adjusted 90° to the sheet P32.2064.
The mounting of the sheet happens by fixation of the disk P32.2121 with the screws N1.2216.
To adjust the sheet the motor could be placed into the housing.

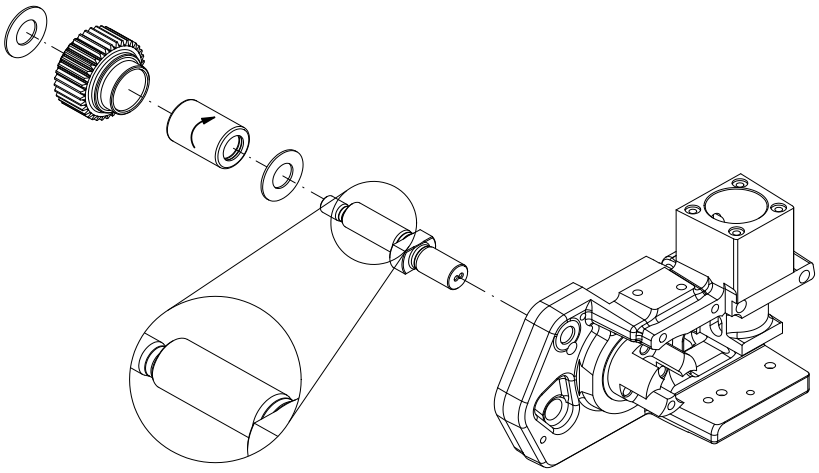




Pay attention to the mounting position of the needle free wheelings N3.4509 and N3.4520.
The rolling direction is stamped in at the front side of the free wheelings.



Pay attention to the mounting position of the eccentric (P32.2034).



(P326) Eccentric behind

Adjustment of the lever P32.1414

If the handle lever after welding and cooling of the strap can be pulled up difficult or not at all, the adjustment of the lever P32.1414 must be checked.

It can be done as follows:

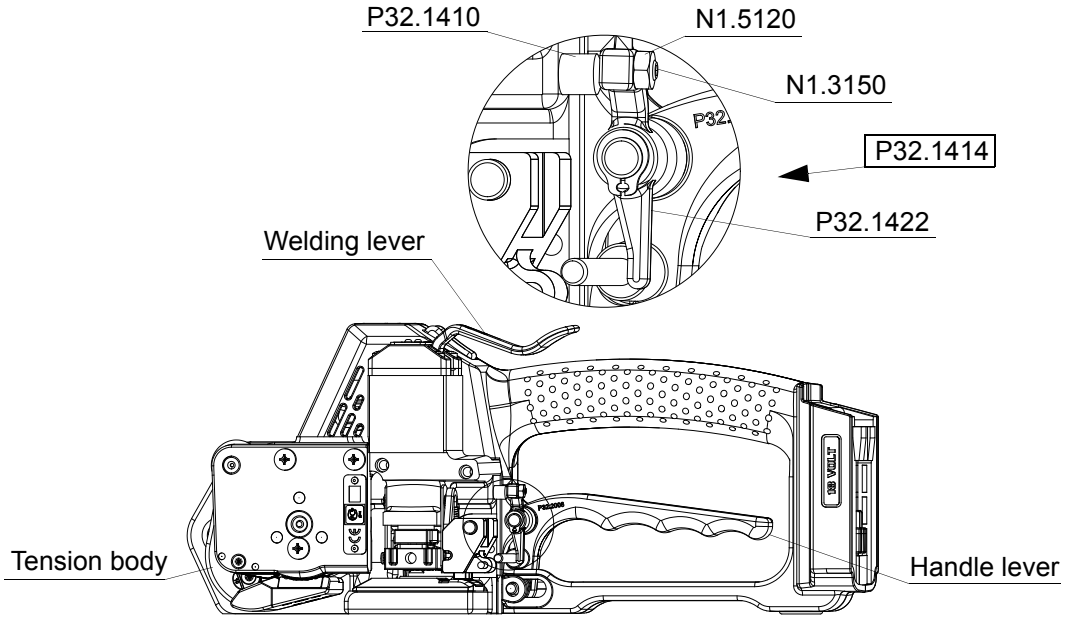
- Loose lock nut N1.5120
- Screw in the socket set screw N1.3150, until it touches the coupler P32.1410
- Tighten lock nut N1.5120

Test without battery and strap:

- Press welding lever down until it locks
- Pull handle lever up

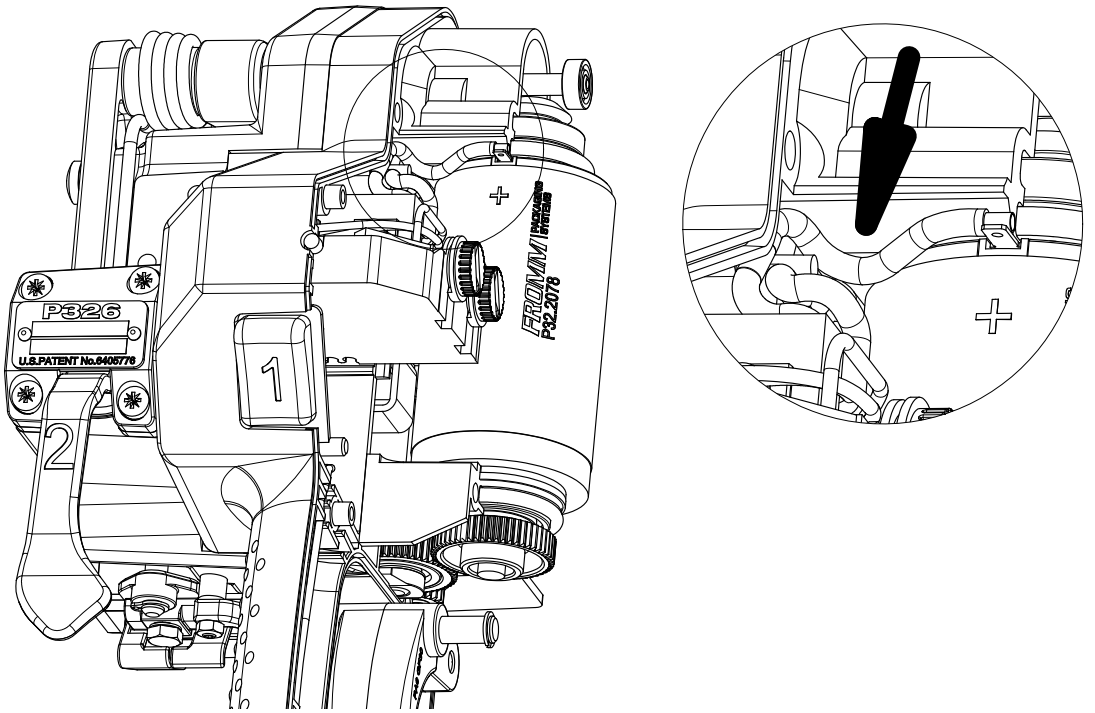
The welding lever must move up before the tension body swings forward.
Swings the tension body forward first, the strap blocks the welding jaw and the handle lever can be pulled up difficult or not at all.

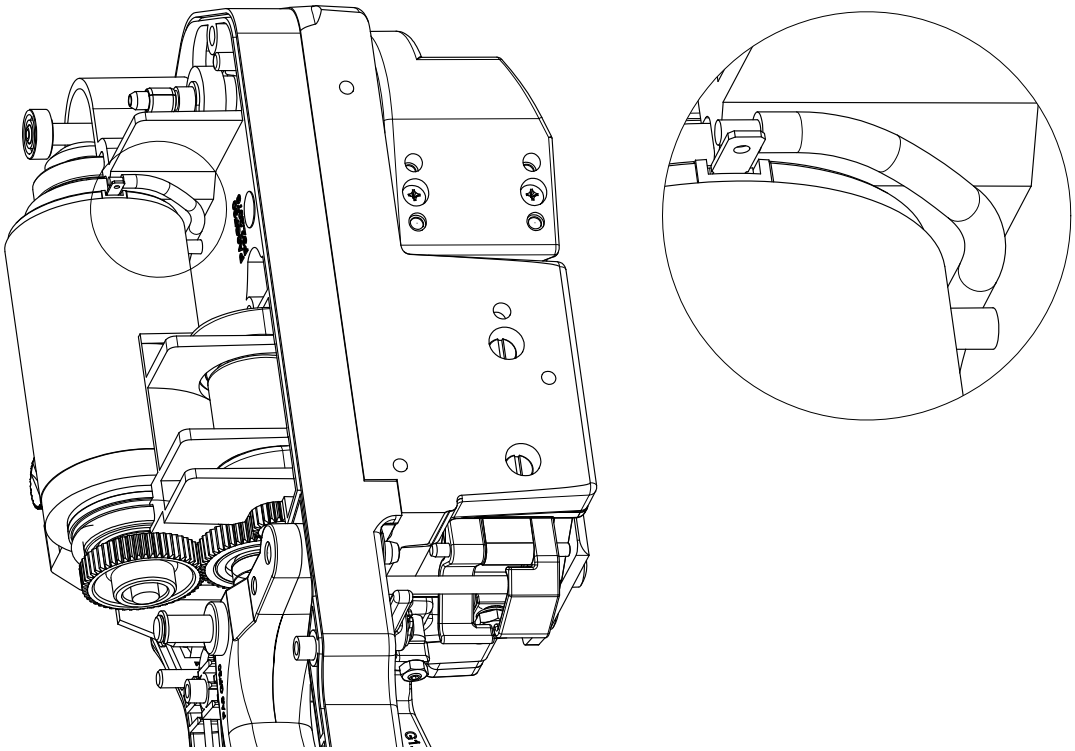
Afterwards do a test strapping and readjust if necessary.



Connection of the circuit board to the motor

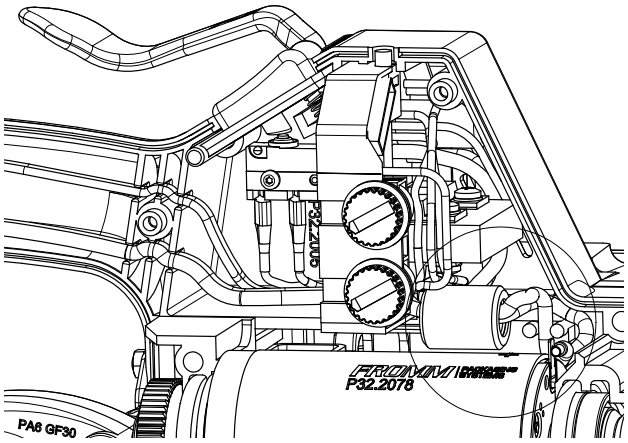
In order to prevent a cracking of the terminals on the motor, the connection cables of the circuit board have to be laid as shown on the pictures before they are soldered to the motor.

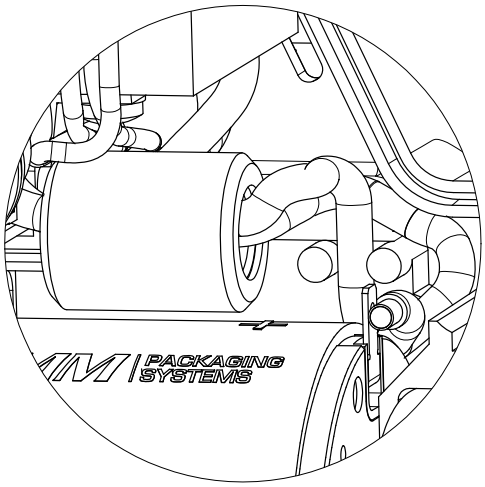


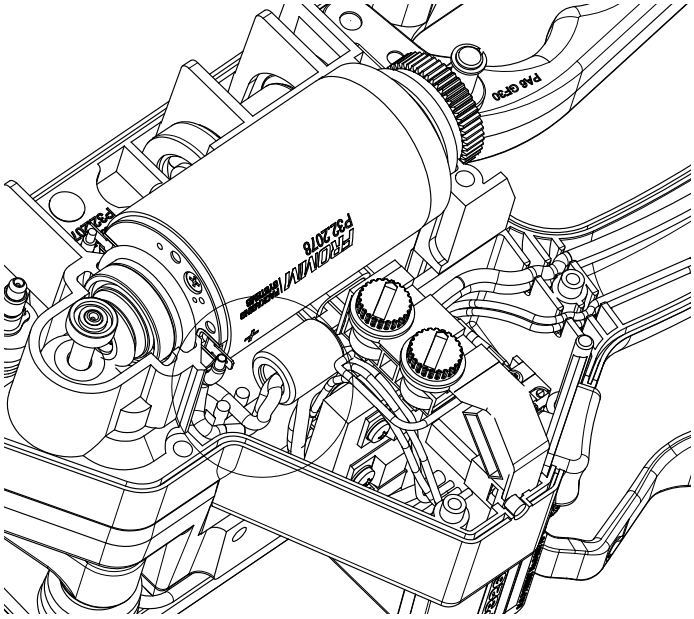


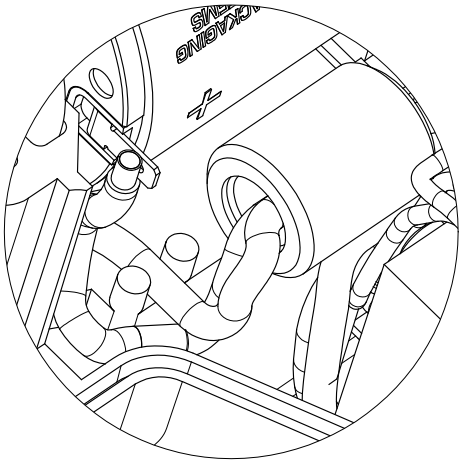
Mounting of the dowel P32.2123

The dowel P32.2123 has to be mounted between motor and circuit board like shown.









1.5 RECOMMENDED SPARE PARTS

Following spare parts are recommended for stock keeping:

Item-No.	Description	Pieces per tool
N1.1305	Screw	2
N1.1904	Screw	5
N1.1909	Flat head screw	2
N1.1927	Flat head screw	2
N1.1929	Screw	1
N1.1934	Flat head screw	3
N1.6503	Safety washer	6
N1.6504	Safety washer	12
N1.6505	Safety washer	3
N1.7206	PT-screw	1
N1.7211	PT-screw	6
N2.1118	Security ring	1
N2.1121	Security ring	5
N2.1606	Spring ring	1
N2.1805	Tensioning ring	1
N3.1702	Ball	6
N3.4509	Free wheeling	2
N3.4520	Free wheeling	1
N51.2194	Insertation part	1
N5.2367	Micro switch	1
N5.2368	Micro switch	1
P32.0153	Body	1
P32.1053*	Welding gripper	1
P32.1203*	Welding stop gripper	1
P32.1204*	Cutter	1
P32.1219/20*	Tensioning wheel	1
P32.1222/25*	Gripper	1
P32.1223/26*	Gripper	1
P32.1224/27*	Gripper	1
P32.1238	End cover	1
P32.2026	Lever	1
P32.2078*	Electric motor	1
P32.2079	Motor housing	1
P32.2080	Motor housing	1
P32.2081	Circuit board	1

* = wearing parts
Stock only parts from tools that are in sale.

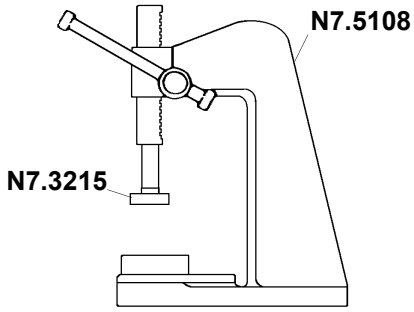
1.6 ACCESSORY TOOLS

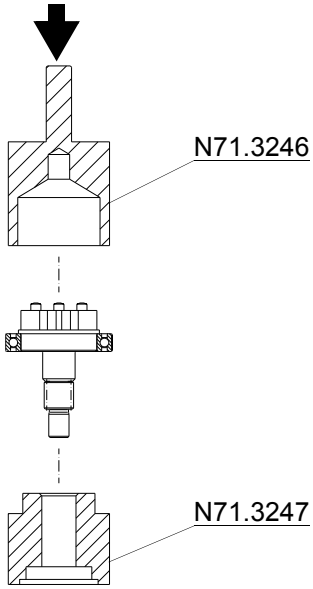
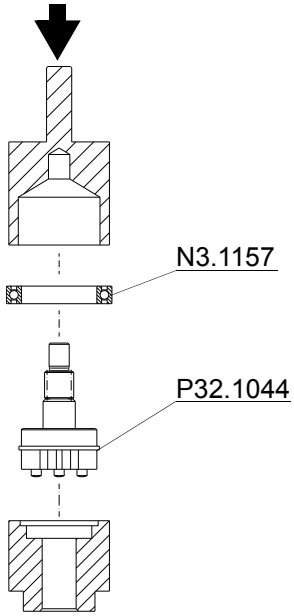
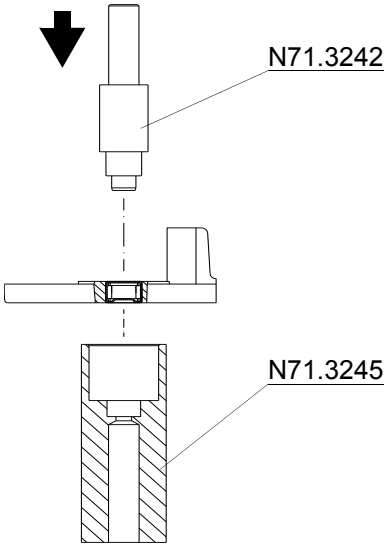
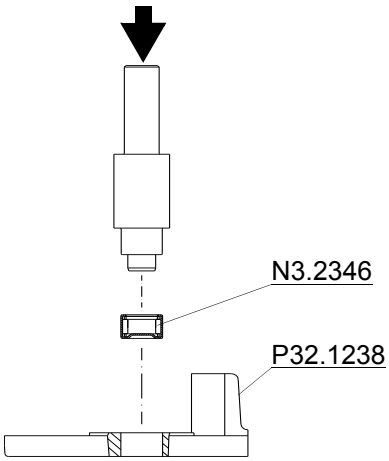
Item number	Description	Application
N71.3235	Press in and press out arbor	N3.4509/P32.2036; N3.4509/P32.2015
N71.3237	Press in and press out arbor	N3.1159/P32.2016
N71.3239	Press in arbor	N3.2347/P32.1024
N71.3240	Press out arbor	N3.2347/P32.1024
N71.3241	Press in and press out pressure pad	N3.2347/P32.1024
N71.3242	Press in and press out arbor	N3.2346/P32.1238
N71.3243	Press in arbor	N3.1134, P32.1023/P32.1022
N71.3244	Press out arbor	N3.1134, P32.1023/P32.1022
N71.3245	Pressure pad	N3.1134, P32.1023/P32.1022; N3.2346/P32.1238
N71.3246	Press in and press out arbor	N3.1157/P32.1044
N71.3247	Press in and press out pressure pad	N3.1157/P32.1044
N71.3248	Press in arbor	N3.3172/P32.2088
N71.3249	Press out pressure pad	N3.3172/P32.2088
N71.3250	Press in and press out arbor	N3.3172/P32.2001; N3.3172/P32.2088
N71.3282	Press in and press out pressure pad	N3.4509/P32.2015; N3.4520/P32.2018; N3.4509/P32.2036
N71.3283	Press in and press out pressure pad	N3.1159/P32.2016
N71.3284	Press out arbor	N3.4520/P32.2018
N71.3285	Press out pressure pad	N3.1137/P32.2015
N71.3286	Press out arbor	N3.1137/P32.2015

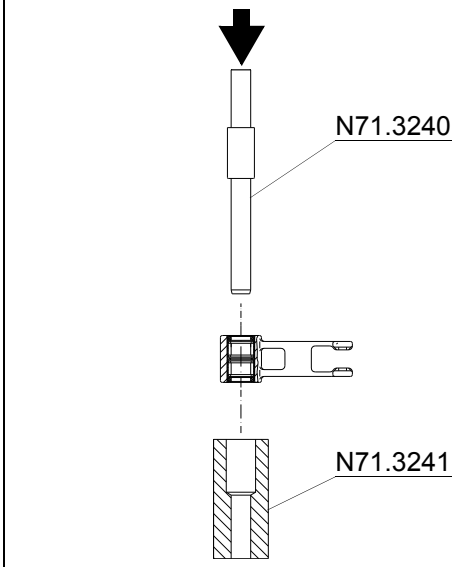
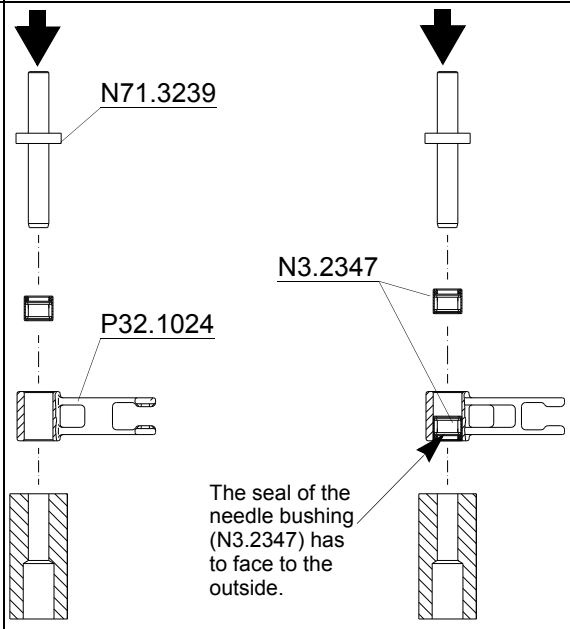
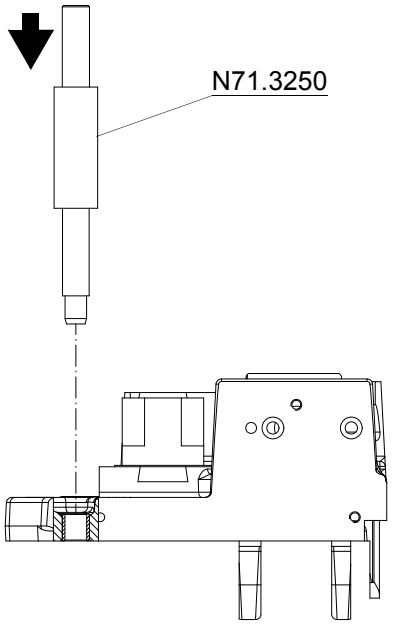
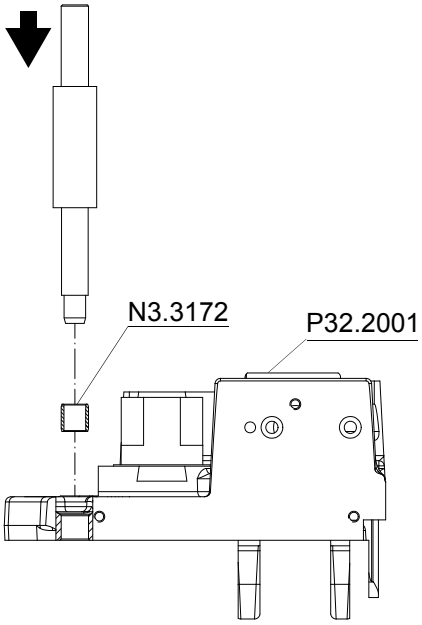
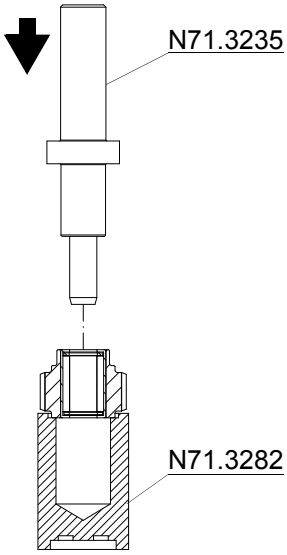
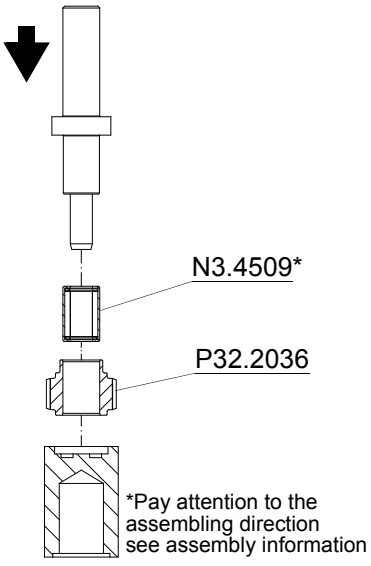
Partly some of these tools are already used for other models.

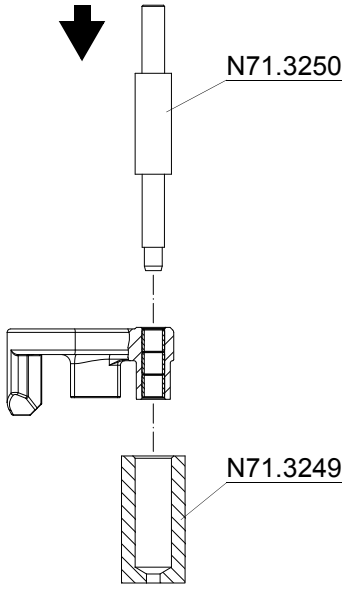
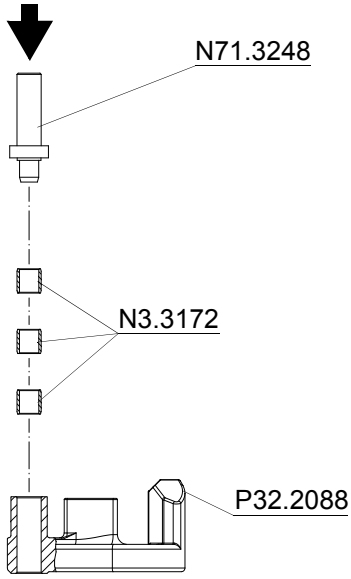
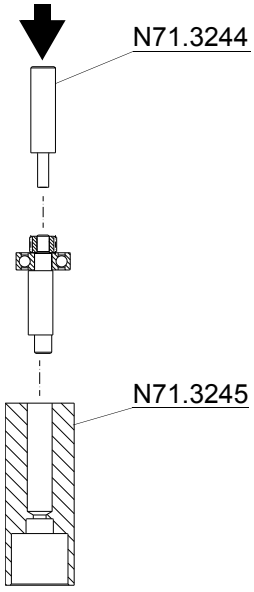
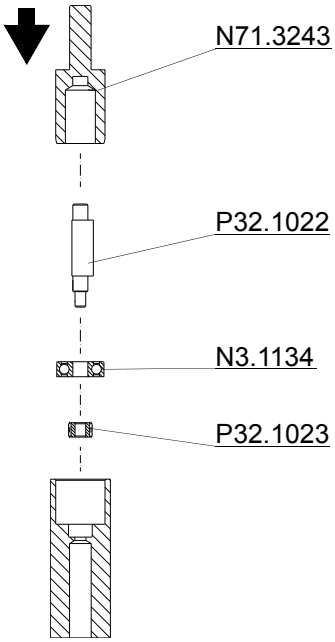
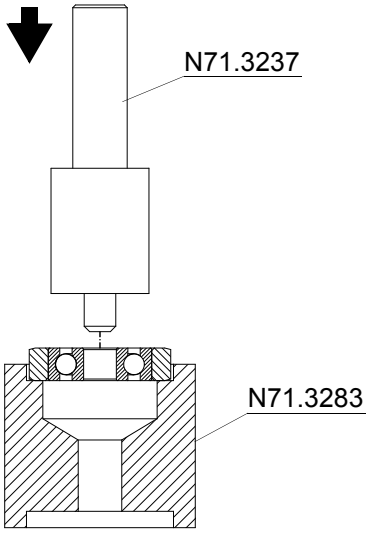
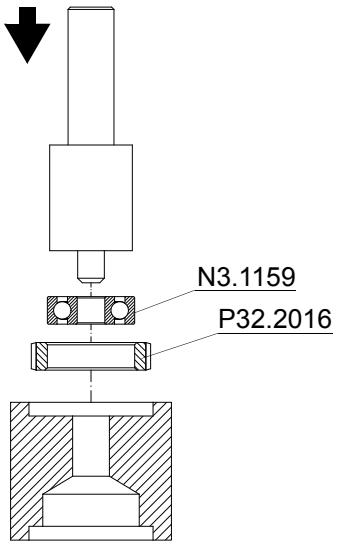
1.7 USE OF ACCESSORY TOOLS

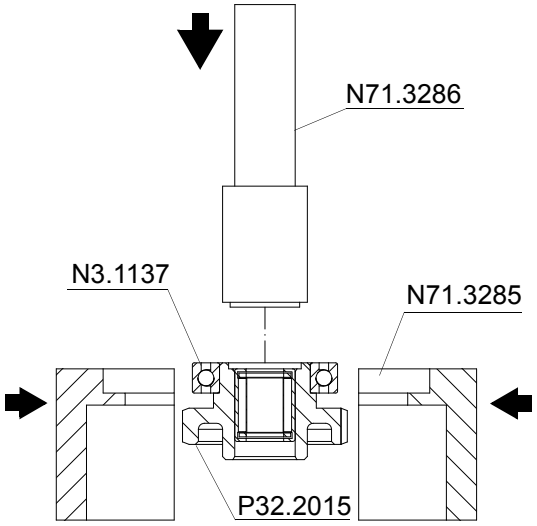
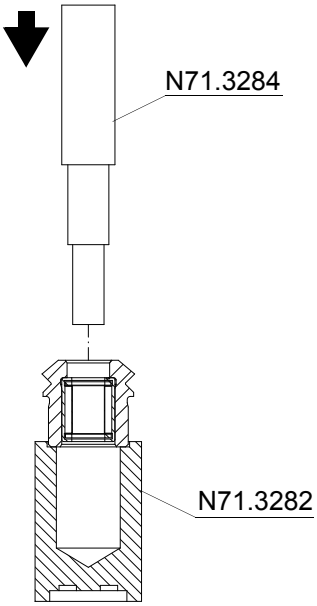
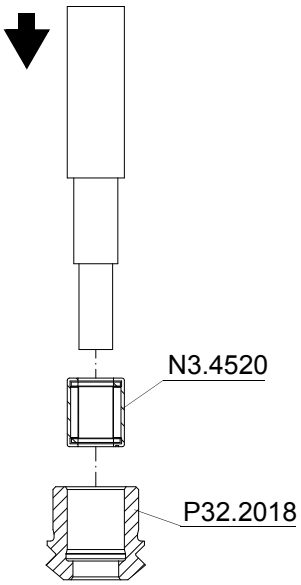
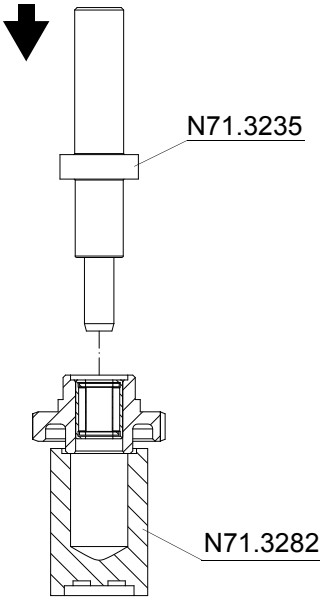
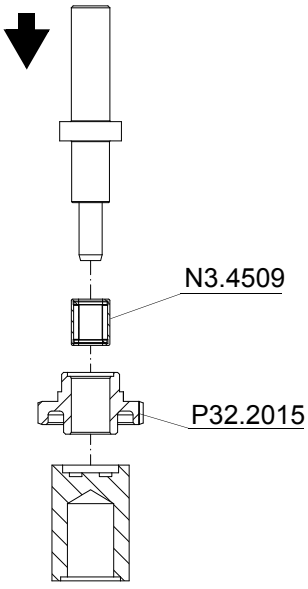
Accessory tools should only be used with the suitable arbor press N7.5108 to prevent a jam of the parts have to be pressed in. Additional a retainer (N7.3215) is necessary.



Part	Disassembly	Assembly
N3.1157/ P32.1044		
N3.2346/ P32.1238		

Part	Disassembly	Assembly
N3.2347/ P32.1024		
N3.3172/ P32.2001		
N3.4509/ P32.2036		

Part	Disassembly	Assembly
N3.3172/ P32.2088		
P32.1023/ N3.1134/ P32.1022		
P32.2016/ N3.1159		

Part	Disassembly	Assembly
P32.2015/ N3.1137		
P32.2018/ N3.4520		
P32.2015/ N3.4509		

1.8 ORDERING SPARE PARTS

On principle spare part numbers should be taken from the drawings or spare parts lists. Check if the version number of the tool and the spare parts list are the same.
Type dependent spare parts should be ordered as follows:

Ordering example

Ordering a tensioning wheel:

- Take item numbers of the tensioning wheel from drawing (P32.1219/20)
- Find out the tool type in which the tensioning wheel should be assembled (e.g. 43.2223)
- Find out the item number of the needed tensioning wheel by using the type dependent spare parts lists (for type 43.2223 it is tensioning wheel P32.1219).

Order as follows if 10 tensioning wheels are needed:
P32.1219 Tensioning wheel 10 pcs.

1.8.1 Ordering manuals

When converting tools make sure that the used manual has still validity.
If tools change their item number because of the conversion (see chart of types) the adequate manual must be ordered as follows.

Ordering example:

Tool item number: 43.2223
Version number: 01
Language of the manual: de

The manual order for this tool must look as follows:
43222301.de
If the manual is needed in another language replace the shorthand expression "de" (see table).

de	**German**
en	**English**
fr	**French**
it	**Italian**
nl	**Dutch**
po	**Portuguese**
se	**Swedish**
fin	**Finnish**
sp	**Spanish**
ru	**Russian**
cz	**Czech**
hu	**Hungarian**
pl	**Polish**
sk	**Slovakian**
tr	**Turkish**

1.8.2 Ordering address

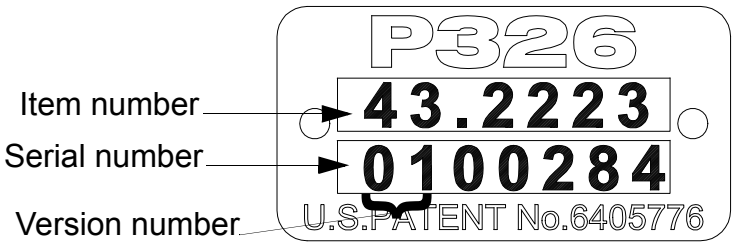
Spare parts and manuals can be ordered at:

Fromm Holding AG
Hinterbergstrasse 26
CH-6330 Cham
Switzerland

Tel.: +41(0) 41 741 57 41
Fax: +41(0) 41 741 57 60
e-mail: orders@fromm-pack.com

1.8.3 Finding out of the tool type (item number), the serial number and the version number:

Type label P326



1.9 SERVICE ADDRESS

You will get further assistance and information at:

Fromm System GmbH
Technical customer support
Neulandstr. 10
D-77855 Achern
Germany

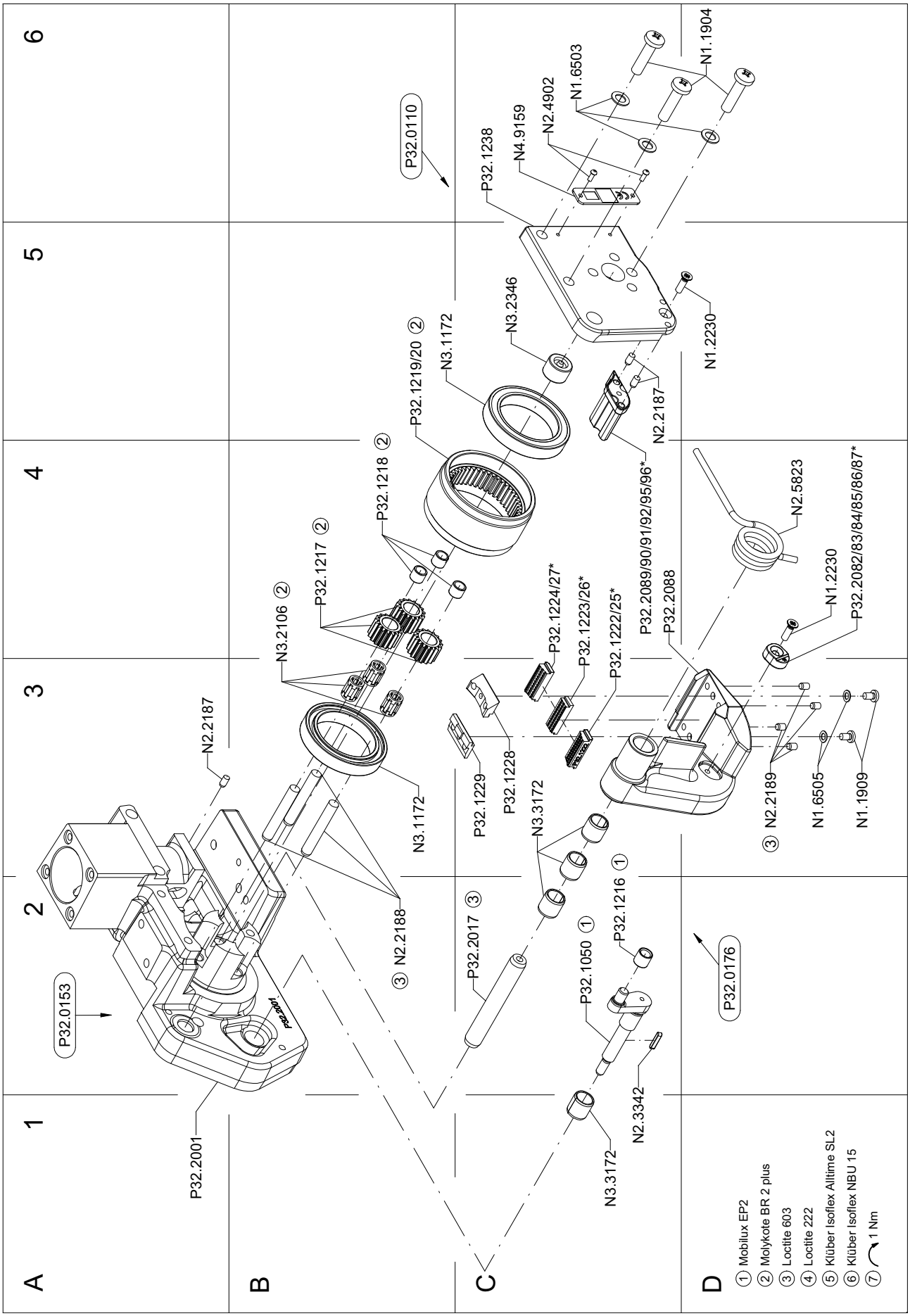
Phone: +49(0)7841 / 62 94-22
Fax: +49(0)7841 / 62 94-11

e-mail: de@fromm-pack.com

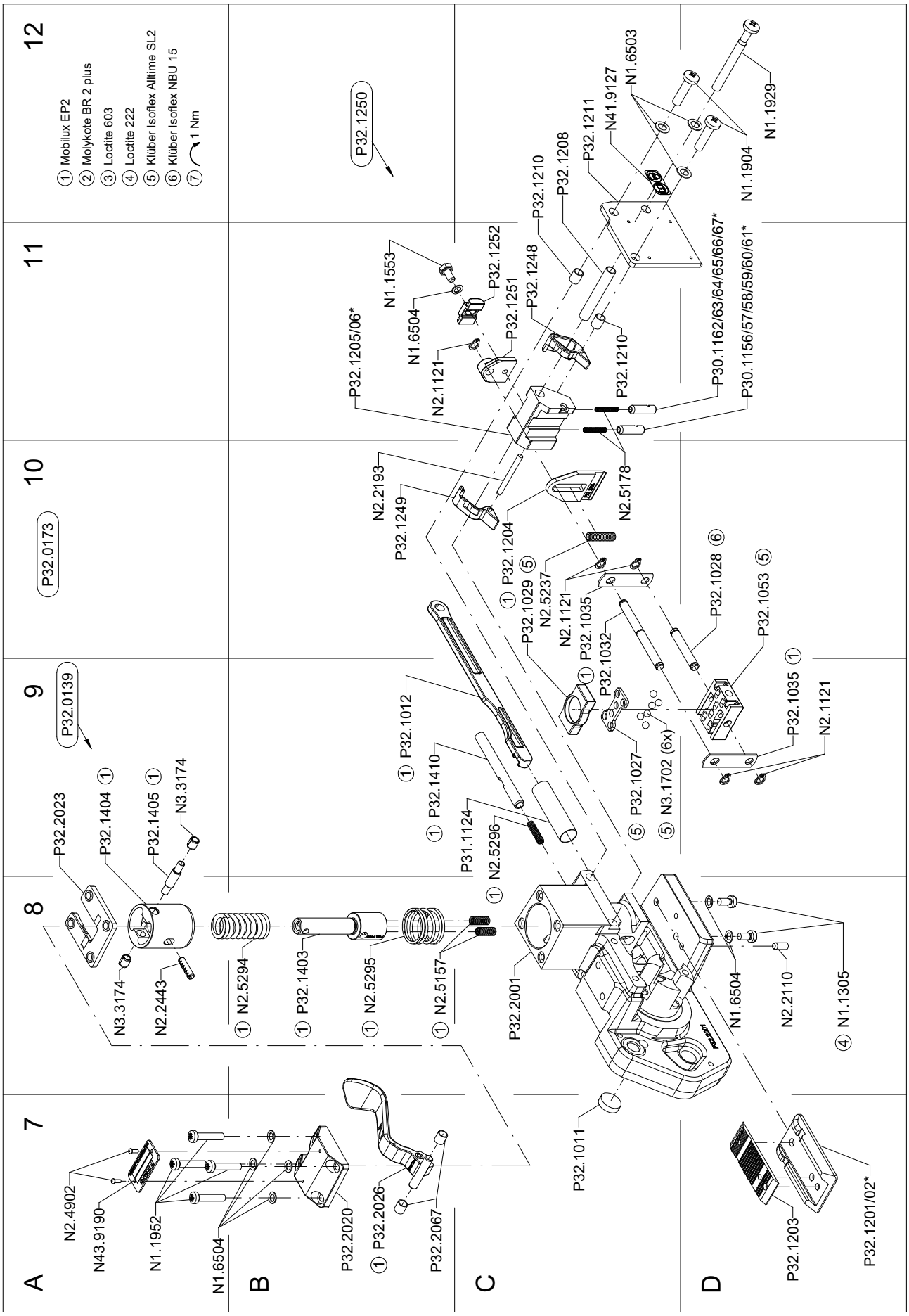
1.10 CHART OF TYPES

Item no.	Model	Strap width	Strap thickness
43.2201	P326/10/0.40-0.64	10 mm / 3/8"	0.40-0.64 mm / .016 - .025"
43.2202	P326/10/0.65-1.05	10 mm / 3/8"	0.65-1.05 mm / .026 - .041"
43.2211	P326/11.1/0.40-0.64	11.1 mm / 7/16"	0.40-0.64 mm / .016 - .025"
43.2212	P326/11.1/0.65-1.05	11.1 mm / 7/16"	0.65-1.05 mm / .026 - .041"
43.2221	P326/12/0.40-0.64	12 mm	0.40-0.64 mm / .016 - .025"
43.2222	P326/12/0.65-1.05	12 mm	0.65-1.05 mm / .026 - .041"
43.2223	P326/12.7/0.40-0.64	12.7 mm / 1/2"	0.40-0.64 mm / .016 - .025"
43.2224	P326/12.7/0.65-1.05	12.7 mm / 1/2"	0.65-1.05 mm / .026 - .041"
43.2231	P326/13/0.40-0.64	13 mm	0.40-0.64 mm / .016 - .025"
43.2232	P326/13/0.65-1.05	13 mm	0.65-1.05 mm / .026 - .041"
43.2251	P326/15/0.40-0.64	15 mm	0.40-0.64 mm / .016 - .025"
43.2252	P326/15/0.65-1.05	15 mm	0.65-1.05 mm / .026 - .041"
43.2253	P326/15.5/0.40-0.64	15.5 mm	0.40-0.64 mm / .016 - .025"
43.2254	P326/15.5/0.65-1.05	15.5 mm	0.65-1.05 mm / .026 - .041"
43.2261	P326/16/0.40-0.64	16 mm / 5/8"	0.40-0.64 mm / .016 - .025"
43.2262	P326/16/0.65-1.05	16 mm / 5/8"	0.65-1.05 mm / .026 - .041"

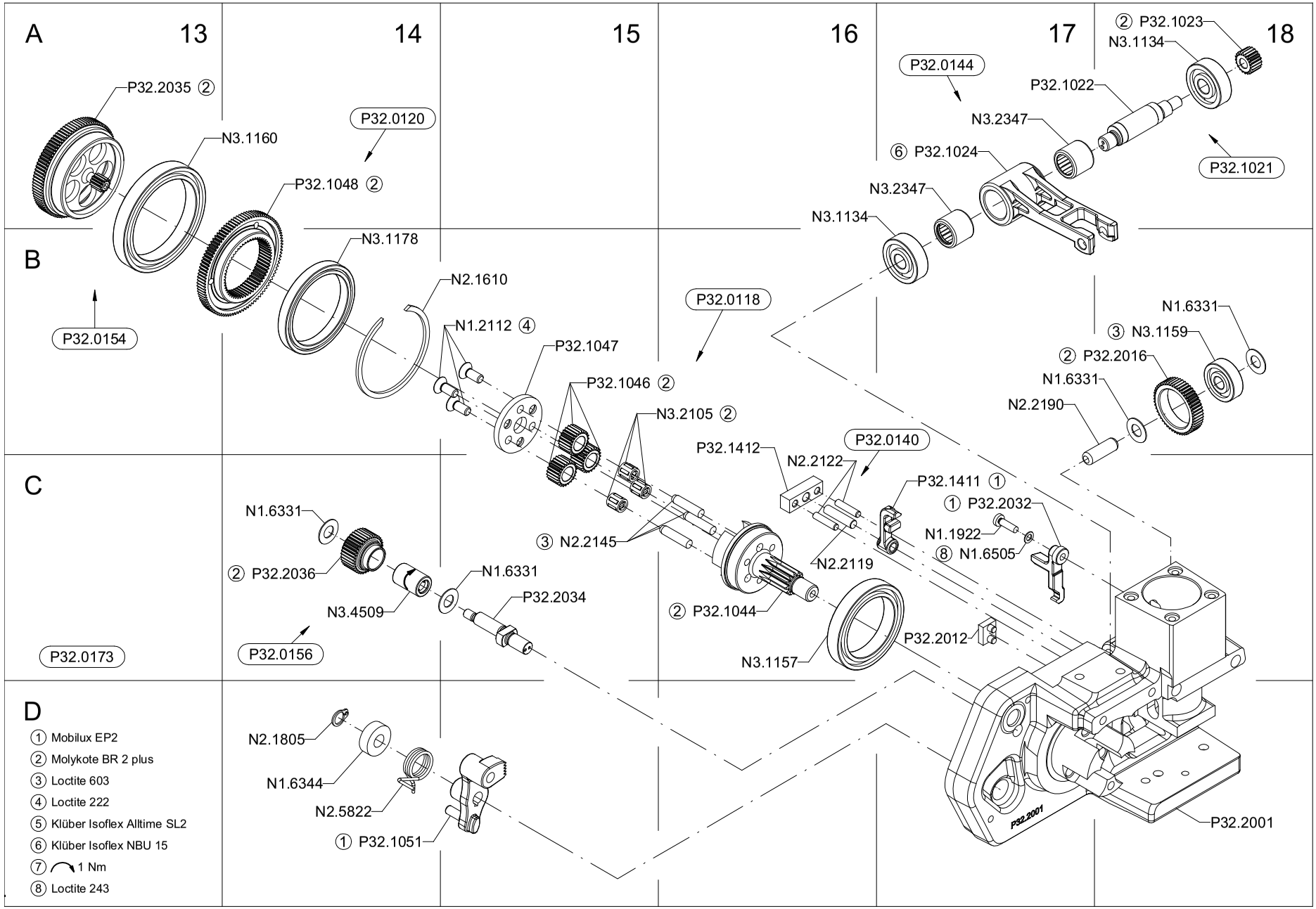
2 DRAWING P326.0001.01

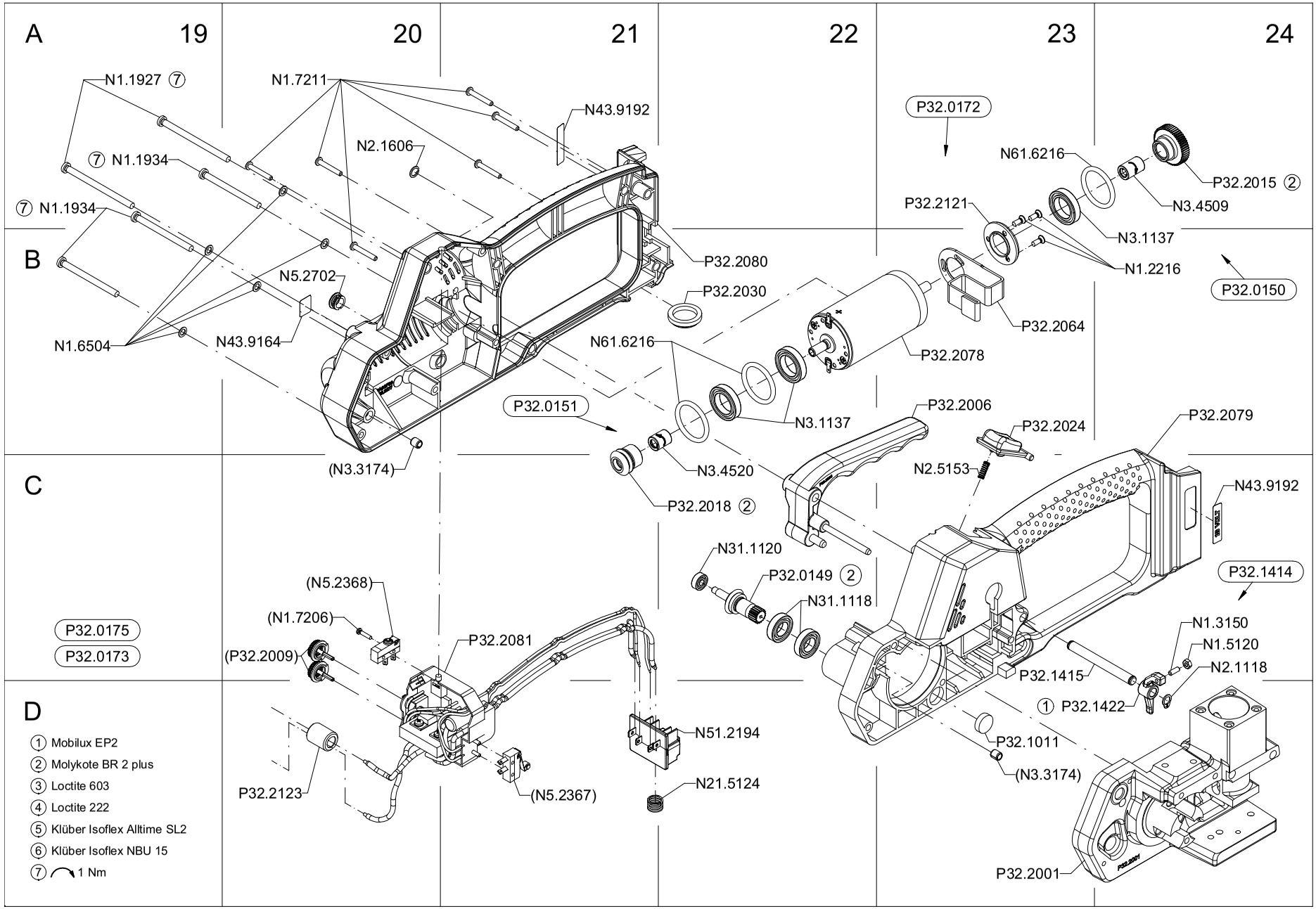


***See 1.8 Ordering spare parts**



***See 1.8 Ordering spare parts**


A
13
14
15
16
17
18
B
C
D
P32.2035 ②
N3.1160
P32.0120
P32.1048 ②
N3.1178
N2.1610
N1.2112 ④
P32.1047
P32.1046 ②
N3.2105 ②
P32.0154
P32.0118
P32.0144
P32.1022
N3.2347
⑥ P32.1024
N3.2347
N3.1134
② P32.1023
N3.1134
P32.1021
N1.6331
③ N3.1159
② P32.2016
N1.6331
N2.2190
P32.1412
N2.2122
P32.0140
P32.1411 ①
① P32.2032
N1.1922
⑧ N1.6505
③ N2.2145
N2.2119
② P32.1044
N3.1157
P32.2012
N1.6331
② P32.2036
N1.6331
N3.4509
P32.2034
P32.0156
P32.0173
N2.1805
N1.6344
N2.5822
① P32.1051
P32.2001
① Mobilux EP2
② Molykote BR 2 plus
③ Loctite 603
④ Loctite 222
⑤ Klüber Isoflex Alltime SL2
⑥ Klüber Isoflex NBU 15
⑦ 1 Nm
⑧ Loctite 243


A
19
20
21
22
23
24
B
C
D
N1.1927 ⑦
N1.7211
N43.9192
⑦ N1.1934
N2.1606
⑦ N1.1934
P32.2080
N5.2702
P32.2030
N1.6504
N43.9164
(N3.3174)
N61.6216
P32.2078
P32.0151
N3.1137
N3.4520
P32.2018 ②
P32.0172
N61.6216
P32.2015 ②
N3.4509
P32.2121
N3.1137
N1.2216
P32.0150
P32.2064
P32.2006
P32.2024
P32.2079
N2.5153
N43.9192
N31.1120
P32.0149 ②
N31.1118
P32.1414
N1.3150
N1.5120
N2.1118
P32.1415
① P32.1422
P32.1011
(N3.3174)
P32.2001
P32.0175
P32.0173
(N5.2368)
(N1.7206)
P32.2081
(P32.2009)
N51.2194
N21.5124
P32.2123
(N5.2367)
① Mobilux EP2
② Molykote BR 2 plus
③ Loctite 603
④ Loctite 222
⑤ Klüber Isoflex Alltime SL2
⑥ Klüber Isoflex NBU 15
⑦ 1 Nm

3 SPARE PARTS LIST P326

3.1 Type independent spare parts P326.0001.01

Item-No.		in group	Pcs.	Description	Dimension	Field
N1.1305			2	SCREW	M4 X 7.8	D8
N1.1553		P32.1250	1	HEXAGON SCREW	M4 X 8	B11
N1.1904			5	SCREW	M5 X 20	D6+
N1.1909			2	FLAT HEAD SCREW	M3 X 5	D3
N1.1922		P32.0173	1	SCREW	M3 X 10	C17
N1.1927		P32.0173	2	FLAT HEAD SCREW	M4 X 60	A19
N1.1929			1	SCREW	M5 X 50	D12
N1.1934		P32.0173	3	FLAT HEAD SCREW	M4 X 50	A19
N1.1952		P32.0173	4	FLAT HEAD SCREW	M4 X 20	A7
N1.2112		P32.0118	3	COUNTERSUNK SCREW	M4 X 10	B15
N1.2216		P32.0172	3	COUNTERSUNK SCREW	M3 X 8	B24
N1.2230			2	COUNTERSUNK SCREW	M3 X 10	D4+
N1.3150		P32.1414	1	SOCKET SET SCREW	M3 X 8	C24
N1.5120		P32.1414	1	HEXAGON NUT	M3	C24
N1.6331		P32.0173	4	SPACER WASHER	6 X 12 X 0.5	C14+
N1.6344		P32.0173	1	SPACER PIECE	6.3 X 15 X 5	D14
N1.6503			6	SAFETY WASHER	M5	C6+
N1.6504			2	SAFETY WASHER	M4	D8
N1.6504		P32.0173	9	SAFETY WASHER	M4	A7+
N1.6504		P32.1250	1	SAFETY WASHER	M4	B11
N1.6505			2	SAFETY WASHER	M3	D3
N1.6505		P32.0173	1	SAFETY WASHER	M3	C17
N1.7206		P32.2081	1	PT-SCREW	2.2 X 10	C20
N1.7211		P32.0175	6	PT-SCREW	3 X 20	A20
N21.5124		P32.0175	1	PRESSURE SPRING	0.9 X 10 X 15/5.5	D22
N2.1118		P32.0175	1	SECURITY RING	6	C24
N2.1121			1	SECURITY RING	5	B11
N2.1121		P32.0173	4	SECURITY RING	5	D9+
N2.1606		P32.0175	1	SPRING RING	SW6	A20
N2.1610		P32.0173	1	SPRING RING	SB44	B15
N2.1805		P32.0173	1	TENSIONING RING	6	D14
N2.2110		P32.0153	1	PARALLEL PIN	4 m6 X 10	D8
N2.2119		P32.0140	1	PARALLEL PIN	4 m6 X 18	C16
N2.2122		P32.0140	2	PARALLEL PIN	3 h6 X 14	C16
N2.2145		P32.0118	3	PARALLEL PIN	4 h6 X 18	C15
N2.2187		P32.0110	2	PARALLEL PIN	3 m6 X 6	C5
N2.2187		P32.0153	1	PARALLEL PIN	3 m6 X 6	A3
N2.2188		P32.0153	3	PARALLEL PIN	5 h6 X 34	B2
N2.2189		P32.0176	4	PARALLEL PIN	3 m6 X 5	D3
N2.2190		P32.0173	1	PARALLEL PIN	6 h6 X 18	B17
N2.2193			1	PARALLEL PIN	3 m6 X 32	B10
N2.2443		P32.0139	1	DOWEL PIN	4 X 15	A8
N2.3342		P32.0173	1	FEATHER KEY	2 X 2 X 10	C1
N2.4902			4	HAMMER HEAD BOLT	1.85 X 4.76	C6+
N2.5153		P32.0175	1	PRESSURE SPRING	0.4 X 4.1 X 16/10.5	C23
N2.5157		P32.0173	2	PRESSURE SPRING	0.6 X 4.8 X 20/15.5	B8
N2.5178			2	PRESSURE SPRING	0.32 X 2.82 X 20.5/ 20.5	C10
N2.5237			1	PRESSURE SPRING	0.8 X 4.8 X 25/18.5	C10
N2.5294		P32.0139	1	PRESSURE SPRING	2.5 X 15 X 46.5/9.5	B8

[ ] = Group * = Wearing parts

Item-No.		in group	Pcs.	Description	Dimension	Field
N2.5295		P32.0173	1	PRESSURE SPRING	1.5 X 21 X 27/5.5	B8
N2.5296		P32.0173	1	PRESSURE SPRING	0.5 X 4 X 24/16.5	C9
N2.5822		P32.0173	1	TORSION SPRING	1.25 X 12/3.75	D14
N2.5823			1	TORSION SPRING	2.8 X 17/4	D4
N31.1118		P32.0175	2	BALL BEARING	10 X 19 X 5	C22
N31.1120		P32.0175	1	BALL BEARING	4 X 11 X 4	C22
N3.1134		P32.0173	1	BALL BEARING	7 X 22 X 7	A16
N3.1134		P32.1021	1	BALL BEARING	7 X 22 X 7	A18
N3.1137		P32.0150	1	BALL BEARING	15 X 24 X 5	B24
N3.1137		P32.0175	2	BALL BEARING	15 X 24 X 5	B22
N3.1157		P32.0118	1	BALL BEARING	30 X 42 X 7	C16
N3.1159		P32.0173	1	BALL BEARING	6 X 19 X 6	B18
N3.1160		P32.0154	1	BALL BEARING	40 X 52 X 7	A14
N3.1172			2	BALL BEARING	30 X 42 X 7	B3+
N3.1178		P32.0120	1	BALL BEARING	35 X 44 X 5	B14
N3.1702		P32.0173	6	BALL	4 MM	C9
N3.2105		P32.0118	3	NEEDLE CAGE	K 4 X 7 X 7 TN	B16
N3.2106			3	NEEDLE CAGE	K 5 X 8 X 10 TN	B4
N3.2346		P32.0110	1	NEEDLE CASE	8 X 12 X 8	C5
N3.2347		P32.0144	2	NEEDLE BUSH	10 X 14 X 12	A17
N3.3172		P32.0153	1	SLIDE-BEARING	8 X 10 X 10	C1
N3.3172		P32.0176	3	SLIDE-BEARING	8 X 10 X 10	C3
N3.3174		P32.0139	2	SLIDE-BEARING	4 X 5.5 X 6	A8+
N3.3174		P32.2079	1	SLIDE-BEARING	4 X 5.5 X 6	D23
N3.3174		P32.2080	1	SLIDE-BEARING	4 X 5.5 X 6	C20
N3.4509		P32.0150	1	NEEDLE FREE WHEELING	6 X 10 X 15	A24
N3.4509		P32.0156	1	NEEDLE FREE WHEELING	6 X 10 X 15	C14
N3.4520		P32.0151	1	FREE-WHEELING	6 X 10 X 12	C22
N41.9127			1	ADHESIVE LABEL	20 X 10 X 0.1	C12
N43.9164			1	ADHESIVE LABEL	WEEE	B20
N43.9190			1	TYPE PLATE	<<P326>>	A7
N43.9192		P32.0175	2	ADHESIVE LABEL	18 Volt	A21+
N4.9159			1	LABEL	<<CE>>	C6
N51.2194		P32.0175	1	INSERTATION PART		D22
N5.2367		P32.2081	1	MICRO SWITCH		D21
N5.2368		P32.2081	1	MICRO SWITCH		C20
N5.2702			1	COVER		B20
N61.6216		P32.0175	3	O-RING	23.5 X 3	B21+
P31.1124		P32.0153	1	TUBE		C9
[P32.0110]			1	END COVER		B6
[P32.0118]		P32.0173	1	IDLER STEP		B16
[P32.0120]		P32.0173	1	WHEEL		A14
[P32.0139]		P32.0173	1	SPRING PACKAGE		A9
[P32.0140]		P32.0173	1	INSERTATION PART		B17
[P32.0144]		P32.0173	1	ROCKER		A17
[P32.0149]		P32.0175	1	PINION		C22
[P32.0150]		P32.0175	1	GEAR WHEEL		B24
[P32.0151]		P32.0175	1	CONICAL GEAR WHEEL		B21
[P32.0153]		P32.0173	1	BODY		A2
[P32.0154]		P32.0173	1	GEAR WHEEL		B13
[P32.0156]		P32.0173	1	GEAR WHEEL		C14
[P32.0172]		P32.0175	1	MOTOR		A23
[P32.0173]			1	BASE MODEL		A10+
[P32.0175]		P32.0173	1	DRIVE		C19

[ ] = Group * = Wearing parts

Item-No.		in group	Pcs.	Description	Dimension	Field
[P32.0176]			1	TENSIONING BODY		D2
P32.1011		P32.0173	1	FELT		C7
P32.1011		P32.0175	1	FELT		D23
P32.1012		P32.0173	1	COUPLER		B9
[P32.1021]		P32.0173	1	WELDING EXCENTRIC		A18
P32.1022		P32.1021	1	WELDING EXCENTRIC		A17
P32.1023		P32.1021	1	PINION		A18
P32.1024		P32.0144	1	ROCKER		A17
P32.1027		P32.0173	1	BALL CAGE		C9
P32.1028		P32.0173	1	BOLT		D10
P32.1029		P32.0173	1	THRUST PIECE		C10
P32.1032		P32.0173	1	DRIVING PIN		C9
P32.1035		P32.0173	2	DRIVER		D9+
P32.1044		P32.0118	1	PLANET SHAFT		C16
P32.1046		P32.0118	3	IDLER GEAR		B15
P32.1047		P32.0118	1	COVER		B15
P32.1048		P32.0120	1	WHEEL		A14
P32.1050		P32.0173	1	FRONT TOGGLE LINK		C2
P32.1051		P32.0173	1	LEVER		D14
P32.1053	*	P32.0173	1	WELDING GRIPPER		D10
P32.1203	*		1	WELDING STOP GRIPPER		D7
P32.1204	*		1	CUTTER		C10
P32.1208			1	CENTERING SLEEVE		C12
P32.1210			2	CENTERING SLEEVE		C11+
P32.1211			1	COVER		C12
P32.1216			1	PRESSURE ROLLER		C2
P32.1217			3	IDLER GEAR		B4
P32.1218			3	DOWEL		B4
P32.1228			1	HOLDER		C3
P32.1229			1	HOLDER		C3
P32.1238		P32.0110	1	END COVER		C6
P32.1248			1	SEESAW LEVER		C11
P32.1249			1	SEESAW LEVER		B10
[P32.1250]			1	COUPLER		B12
P32.1251		P32.1250	1	COUPLER		C11
P32.1252		P32.1250	1	THRUST PIECE		C11
P32.1403		P32.0139	1	SPRING BOLT		B8
P32.1404		P32.0139	1	SPRING SLIDE		A9
P32.1405		P32.0139	1	ROLLER		A9
P32.1410		P32.0173	1	COUPLER		B9
P32.1411		P32.0173	1	LEVER		C17
P32.1412		P32.0140	1	INSERTATION PART		B16
[P32.1414]		P32.0175	1	LEVER		C24
P32.1415		P32.0175	1	HANDLE SHAFT		C23
P32.1422		P32.1414	1	LEVER		D24
P32.2001		P32.0153	1	BODY		A1+
[P32.2006]		P32.0175	1	HANDLE LEVER		B23
P32.2009		P32.2081	2	TURNING BUTTON		C20
P32.2012		P32.0173	1	GUIDE		C17
P32.2015		P32.0150	1	GEAR WHEEL		A24
P32.2016		P32.0173	1	GEAR WHEEL		B18
P32.2017		P32.0153	1	SWIVEL SHAFT		C2
P32.2018		P32.0151	1	CONICAL GEAR WHEEL		C22
P32.2020		P32.0173	1	COVER		B7

[ ] = Group * = Wearing parts

Item-No.		in group	Pcs.	Description	Dimension	Field
P32.2023		P32.0173	1	FIXING PLATE		A9
P32.2024		P32.0175	1	PRESSURE BUTTON		B23
[P32.2026]		P32.0173	1	LEVER		B7
P32.2030		P32.0175	1	DISK		B22
P32.2032		P32.0173	1	HOOK		C17
P32.2034		P32.0173	1	SHAFT		C15
P32.2035		P32.0154	1	GEAR WHEEL		A13
P32.2036		P32.0156	1	GEAR WHEEL		C14
P32.2064		P32.0172	1	COOLING PLATE		B23
P32.2067		P32.0173	2	CENTERING SLEEVE		B7
[P32.2078]	*	P32.0172	1	ELECTRIC MOTOR		B23
[P32.2079]		P32.0175	1	MOTOR HOUSING		B24
[P32.2080]		P32.0175	1	MOTOR HOUSING		B22
[P32.2081]		P32.0175	1	CIRCUIT BOARD		C21
P32.2088		P32.0176	1	TENSIONING BODY		C4
P32.2121		P32.0172	1	DISK		A23
[P32.2123]		P32.0175	1	DOWEL		D20

[ ] = Group * = Wearing parts

3.2 Type dependent spare parts P326.0001.01

Type 43.2201.01

43.2201.01	P326/10/0.40-0.64			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1156			1	GUIDE PIN		D11
P30.1162			1	GUIDE PIN		D11
P32.1201			1	STEEL INSERT		D7
P32.1205			1	GUIDE CASE		B11
P32.1219	*		1	TENSIONING WHEEL		B5
P32.1222	*		1	GRIPPER		C4
P32.1223	*		1	GRIPPER		C4
P32.1224	*		1	GRIPPER		C4
P32.2082			1	STRAP STOP		D4
P32.2089			1	STRAP GUIDE		C4

Type 43.2202.01

43.2202.01	P326/10/0.65-1.05			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1156			1	GUIDE PIN		D11
P30.1162			1	GUIDE PIN		D11
P32.1202			1	STEEL INSERT		D7
P32.1205			1	GUIDE CASE		B11
P32.1220	*		1	TENSIONING WHEEL		B5
P32.1225	*		1	GRIPPER		C4
P32.1226	*		1	GRIPPER		C4
P32.1227	*		1	GRIPPER		C4
P32.2082			1	STRAP STOP		D4
P32.2089			1	STRAP GUIDE		C4

Type 43.2211.01

43.2211.01	P326/11.1/0.40-0.64			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1158			1	GUIDE PIN		D11
P30.1164			1	GUIDE PIN		D11
P32.1201			1	STEEL INSERT		D7
P32.1205			1	GUIDE CASE		B11
P32.1219	*		1	TENSIONING WHEEL		B5
P32.1222	*		1	GRIPPER		C4
P32.1223	*		1	GRIPPER		C4
P32.1224	*		1	GRIPPER		C4
P32.2083			1	STRAP STOP		D4
P32.2090			1	STRAP GUIDE		C4

[ ] = Group * = Wearing parts

Type 43.2212.01

43.2212.01	P326/11.1/0.65-1.05			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1158			1	GUIDE PIN		D11
P30.1164			1	GUIDE PIN		D11
P32.1202			1	STEEL INSERT		D7
P32.1205			1	GUIDE CASE		B11
P32.1220	*		1	TENSIONING WHEEL		B5
P32.1225	*		1	GRIPPER		C4
P32.1226	*		1	GRIPPER		C4
P32.1227	*		1	GRIPPER		C4
P32.2083			1	STRAP STOP		D4
P32.2090			1	STRAP GUIDE		C4

Type 43.2221.01

43.2221.01	P326/12/0.40-0.64			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1156			1	GUIDE PIN		D11
P30.1162			1	GUIDE PIN		D11
P32.1201			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1219	*		1	TENSIONING WHEEL		B5
P32.1222	*		1	GRIPPER		C4
P32.1223	*		1	GRIPPER		C4
P32.1224	*		1	GRIPPER		C4
P32.2084			1	STRAP STOP		D4
P32.2091			1	STRAP GUIDE		C4

Type 43.2222.01

43.2222.01	P326/12/0.65-1.05			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1156			1	GUIDE PIN		D11
P30.1162			1	GUIDE PIN		D11
P32.1202			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1220	*		1	TENSIONING WHEEL		B5
P32.1225	*		1	GRIPPER		C4
P32.1226	*		1	GRIPPER		C4
P32.1227	*		1	GRIPPER		C4
P32.2084			1	STRAP STOP		D4
P32.2091			1	STRAP GUIDE		C4

[ ] = Group * = Wearing parts

Type 43.2223.01

43.2223.01	P326/12.7/0.40-0.64			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1157			1	GUIDE PIN		D11
P30.1163			1	GUIDE PIN		D11
P32.1201			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1219	*		1	TENSIONING WHEEL		B5
P32.1222	*		1	GRIPPER		C4
P32.1223	*		1	GRIPPER		C4
P32.1224	*		1	GRIPPER		C4
P32.2085			1	STRAP STOP		D4
P32.2095			1	STRAP GUIDE		C4

Type 43.2224.01

43.2224.01	P326/12.7/0.65-1.05			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1157			1	GUIDE PIN		D11
P30.1163			1	GUIDE PIN		D11
P32.1202			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1220	*		1	TENSIONING WHEEL		B5
P32.1225	*		1	GRIPPER		C4
P32.1226	*		1	GRIPPER		C4
P32.1227	*		1	GRIPPER		C4
P32.2085			1	STRAP STOP		D4
P32.2095			1	STRAP GUIDE		C4

Type 43.2231.01

43.2231.01	P326/13/0.40-0.64			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1158			1	GUIDE PIN		D11
P30.1164			1	GUIDE PIN		D11
P32.1201			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1219	*		1	TENSIONING WHEEL		B5
P32.1222	*		1	GRIPPER		C4
P32.1223	*		1	GRIPPER		C4
P32.1224	*		1	GRIPPER		C4
P32.2085			1	STRAP STOP		D4
P32.2095			1	STRAP GUIDE		C4

[ ] = Group * = Wearing parts

Type 43.2232.01

43.2232.01	P326/13/0.65-1.05			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1158			1	GUIDE PIN		D11
P30.1164			1	GUIDE PIN		D11
P32.1202			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1220	*		1	TENSIONING WHEEL		B5
P32.1225	*		1	GRIPPER		C4
P32.1226	*		1	GRIPPER		C4
P32.1227	*		1	GRIPPER		C4
P32.2085			1	STRAP STOP		D4
P32.2095			1	STRAP GUIDE		C4

Type 43.2251.01

43.2251.01	P326/15/0.40-0.64			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1159			1	GUIDE PIN		D11
P30.1165			1	GUIDE PIN		D11
P32.1201			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1219	*		1	TENSIONING WHEEL		B5
P32.1222	*		1	GRIPPER		C4
P32.1223	*		1	GRIPPER		C4
P32.1224	*		1	GRIPPER		C4
P32.2086			1	STRAP STOP		D4
P32.2092			1	STRAP GUIDE		C4

Type 43.2252.01

43.2252.01	P326/15/0.65-1.05			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1159			1	GUIDE PIN		D11
P30.1165			1	GUIDE PIN		D11
P32.1202			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1220	*		1	TENSIONING WHEEL		B5
P32.1225	*		1	GRIPPER		C4
P32.1226	*		1	GRIPPER		C4
P32.1227	*		1	GRIPPER		C4
P32.2086			1	STRAP STOP		D4
P32.2092			1	STRAP GUIDE		C4

[ ] = Group * = Wearing parts

Type 43.2253.01

43.2253.01	P326/15.5/0.40-0.64			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1160			1	GUIDE PIN		D11
P30.1166			1	GUIDE PIN		D11
P32.1201			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1219	*		1	TENSIONING WHEEL		B5
P32.1222	*		1	GRIPPER		C4
P32.1223	*		1	GRIPPER		C4
P32.1224	*		1	GRIPPER		C4
P32.2087			1	STRAP STOP		D4
P32.2096			1	STRAP GUIDE		C4

Type 43.2254.01

43.2254.01	P326/15.5/0.65-1.05			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1160			1	GUIDE PIN		D11
P30.1166			1	GUIDE PIN		D11
P32.1202			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1220	*		1	TENSIONING WHEEL		B5
P32.1225	*		1	GRIPPER		C4
P32.1226	*		1	GRIPPER		C4
P32.1227	*		1	GRIPPER		C4
P32.2087			1	STRAP STOP		D4
P32.2096			1	STRAP GUIDE		C4

Type 43.2261.01

43.2261.01	P326/16/0.40-0.64			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1161			1	GUIDE PIN		D11
P30.1167			1	GUIDE PIN		D11
P32.1201			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1219	*		1	TENSIONING WHEEL		B5
P32.1222	*		1	GRIPPER		C4
P32.1223	*		1	GRIPPER		C4
P32.1224	*		1	GRIPPER		C4
P32.2087			1	STRAP STOP		D4
P32.2096			1	STRAP GUIDE		C4

[ ] = Group * = Wearing parts

Type 43.2262.01

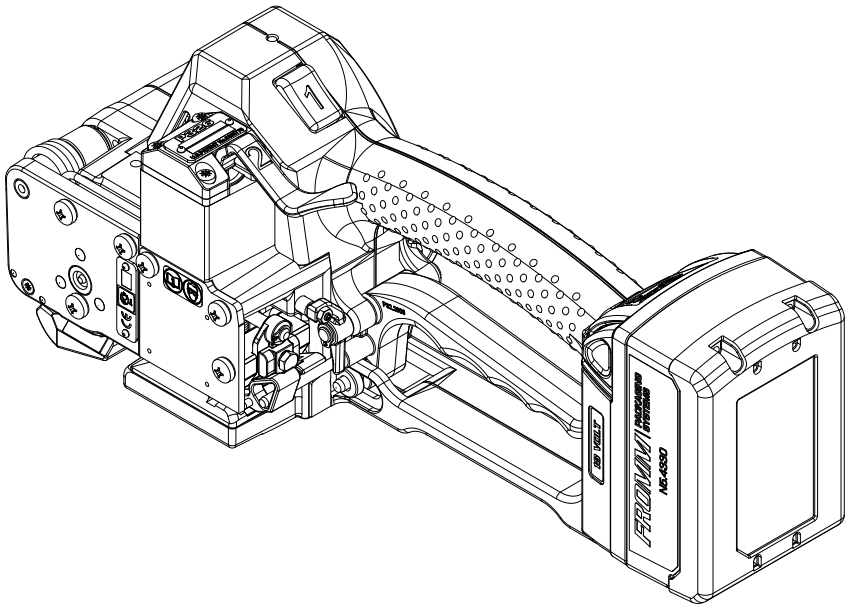
43.2262.01	P326/16/0.65-1.05			P326.0001.01		26.01.10
Item-No.		in group	Pcs.	Description	Dimension	Field
P30.1161			1	GUIDE PIN		D11
P30.1167			1	GUIDE PIN		D11
P32.1202			1	STEEL INSERT		D7
P32.1206			1	GUIDE CASE		B11
P32.1220	*		1	TENSIONING WHEEL		B5
P32.1225	*		1	GRIPPER		C4
P32.1226	*		1	GRIPPER		C4
P32.1227	*		1	GRIPPER		C4
P32.2087			1	STRAP STOP		D4
P32.2096			1	STRAP GUIDE		C4

[ ] = Group * = Wearing parts

FROMM

OPERATION MANUAL

BATTERY - POWERED PLASTIC STRAPPING TOOL MODEL P326.0001.01



P326.0001.01.en/MAS/© 02.10
Original instructions

INDEX PAGE

1 GENERAL SAFETY RULES 4-3

2 SAFETY RULES FOR STRAPPING TOOLS 4-5

3 TECHNICAL DATA 4-6

4 ACCESSORIES 4-7
4.1 Battery 4-7
4.2 Battery - chargers 4-7
4.3 Wearing plate 4-8
4.4 Suspension 4-8
4.5 Turning button kit 4-9

5 OPERATING ELEMENTS 4-10

6 OPERATION 4-10
6.1 Installation 4-10
6.2 Adjustments 4-11
6.3 Feeding the strap around the package 4-12
6.4 Inserting the strap 4-12
6.5 Tensioning the strap 4-12
6.6 Sealing of the joint 4-13
6.7 Removing the tool 4-13
6.8 Seal - Control 4-13

7 CHART OF TYPES P326 4-14

8 ELECTRIC SCHEMATIC ELS.1044 4-14

9 EXCHANGE OF WEARING PARTS 4-15
9.1 Exchange of tensioning wheel and grippers 4-15
9.2 Exchange of cutter, welding stop gripper and welding gripper 4-16
9.3 Adjustment of the coupler P32.1250 4-17

10 SERVICE 4-17

11 CLEANING 4-17

12 DISPOSAL 4-18

13 APPROPRIATE USE 4-18

1 GENERAL SAFETY RULES

WARNING! Read all instructions. Failure to follow all instructions listed below may result in electric shock, fire and/ or serious injury. The term "power tool" in all of the warnings listed below refers to your mains operated (corded) power tool or battery operated (cordless) power tool.

SAVE THESE INSTRUCTIONS.

1.1 Work area

a) **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.

b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Power tools create sparks which may ignite the dust or fumes.

c) **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.

1.2 Electrical safety

a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce the risk of electric shock.

b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.

c) **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.

d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.

e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.

1.3 Personal safety

a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating power tools may result in serious personal injury.

b) **Use safety equipment. Always wear eye protection.** Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

c) **Avoid accidental starting. Ensure the switch is in the off position before plugging in.** Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.

d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.

f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.

g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of these devices can reduce dust related hazards.

1.4 Power tool use and care

a) **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.

b) **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

c) **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.

d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.

e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the operation of the power tool. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.

f) **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

g) **Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.

1.5 Battery tool use and care

a) **Ensure the switch is in the off position before inserting the battery pack.** Inserting the battery pack into power tools that have the switch on invites accidents.

b) **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.

c) **Use power tools only with specifically designated battery packs.** Use of any other battery packs may create a risk of injury and fire.

d) **When the battery pack is not in use, keep it away from other metal objects like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another.** Shorting the battery terminals together may cause burns or a fire.

e) **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.** Liquid ejected from the battery may cause irritation or burns.

1.6 Service

a) **Have your power tool repaired only by qualified personnel using original spare parts.** This will ensure that the safety of the power tool is maintained.

2 SAFETY RULES FOR STRAPPING TOOLS

2.1 Joints

You are fully responsible to review the joints made by your tool. Become familiar with the seal control and seal adjustment described in this operation manual.
Misformed joints may not secure the load and could cause serious injury. Never handle or ship any load with improperly formed joints.

2.2 Dispensing strap

Only dispense strap from a dispenser specifically designed for strap.
Tuck strap end back into dispenser when not in use.

2.3 Strap warnings

Never use strap as a means of pulling or lifting loads. Failure to follow these warnings can result in severe personal injury.

2.4 Strap breakage hazard

Improper operation of the tool, excessive tensioning, using strap not recommended for this tool or sharp corners on the load can result in a sudden loss of strap tension or in strap breakage during tensioning, which could result in the following:

A sudden loss of balance causing you to fall.

Both tool and strap flying violently towards your face.

Note as follows:

If the load corners are sharp, use edge protectors.

Place the strap correctly around a properly positioned load.

Positioning yourself in-line with the strap, during tensioning and sealing, can result in severe personal injury from flying strap or tool. When tensioning or sealing, position yourself to one side of the strap and keep all bystanders away.

Use the correct strap quality, strap width, strap gauge and strap tensile strength recommended in this manual for your tool. Using strap not recommended for this tool can result in strap breakage during tensioning.

2.5 Cutting tensioned strap

When cutting strapping, use the proper strapping cutter and keep other personnel and yourself at a safe distance from the strap. Always stand to side of the strap, away from the direction the loosened strap end will fly. Use only cutters designed for strap and never hammers, pliers, hacksaws, axes, etc.

2.6 Environment protection

Do not dispose of used batteries in the household refuse, water or by burning them.

FROMM distributors offer an environment friendly battery disposal service.

3 TECHNICAL DATA

Description of the tool

The tool model P326 has been designed to strap packages with plastic strapping. The plastic strapping is fed around the package manually or in combination with a strap feeder. The straps are inserted in the tool, automatically tensioned, sealed by friction welding and separated.

Tool size with battery

Length:	350 mm / 13.8“
Width:	122 mm / 4.8“
Height:	130 mm / 5.2“
Weight:	3.95 kg / 8.7 lbs

Noise information

The A-weighted equivalent continuous sound level at the work place of the machine operator is typical 79 dB (A).
This value was determined according to DIN EN 60745-1 (12.2003).
Deviation K: 3 dB

Vibration information

The weighted effective value of the acceleration typically amounts to less than 2.5 m/s^2.
This value was determined according to DIN EN 60745-1 (12.2003).
Deviation K: 0.8 m/s^2

Strap material

Strap qualities:	PET (Polyester) and PP (Polypropylene) plain or embossed. **Use only plastic straps recommended by your sales shop (name and address on the rear of the operation manual).**
Strap dimensions:	10.0 - 16.0 mm / 3/8 - 5/8" x 0.4 - 1.05 mm / .016 - .041" (see chart of types). **Use only plastic straps with the correct strap dimensions for your tool.**

Strap tension

Tensioning force*:	Adjustable from 400 - max. 2400 N / 90 - max. 540 lbs.
Tensioning speed*:	Approx. 85 - 190 mm/s / 3.3 - 7.5 inch/sec.
Joint strength*:	Approx. 75% of the tensile strength of the plastic strap.

* The value depends on the strap quality.

Working temperature

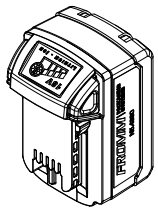
The ambient temperature should be between -10° and 45° C (14° and 113°F).
The best performance is achieved between 15° and 20°C (59° and 68°F).

4 ACCESSORIES

Use only parts and accessories mentioned in the operating instruction. Using other parts or accessories can cause injuries to you and other persons.

4.1 Battery

The battery is not automatically supplied with the tool and has to be ordered separately under the following item number:



Item-No.	Battery	Voltage	Capacity
N5.4330	Li-Ion	18 VDC	3.0 Ah

4.2 Battery - chargers

The charger must be ordered separately according to below shown table.

Item-No.	Voltage / frequency	Admitted for country
N5.4443	220 - 240V / 50 - 60Hz	A, B, BG, BIH, BOL, BR, BY, CH, CL, CZ, D, DK, DZ, E, EAS, EST, ET, F, FIN, GE, GR, H, HK, HR, I, IL, IND, IR, IRQ, IS, JOR, KSA, KWT, L, LAR, LT, LV, MA, MC, MK, MOC, N, NL, P, PK, PE, PL, PRC, PY, RA, RCH, RI, RL, RO, ROK, ROU, RP, RUS, S, SK, SLO, SYR, THA, TN, TR, UA, UAE, YU, YV, (BRN), (BRU), (CY), (EAK), (EAT), (GB), (IRL), (M), (MAL), (OM), (SGP), (Y), (Z), (ZA), (ZW)
N5.4447	120V / 50 - 60Hz	BR, C, CDN, CO, CR, DOM, EC, GCA, J, JA, KSA, LB, MEX, NIC, PA, Puerto Rico, RC, RP, USA, YV
N5.4445	220 - 240V / 50 - 60Hz	AUS, NZ

(..) = an adaptor is required

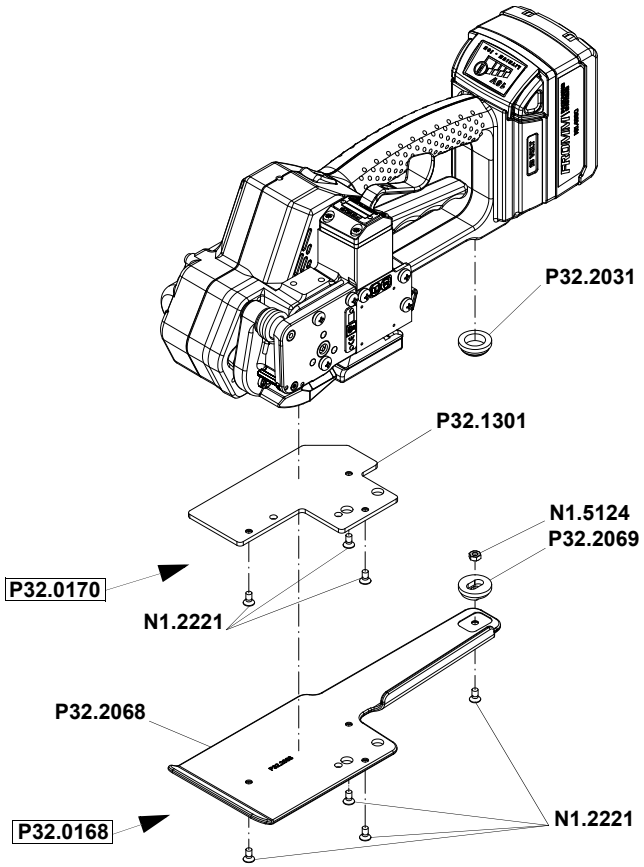
Charging time

Item-No.	Battery	Charging time
N5.4330	Li-Ion	approx. 60 min.

4.3 Wearing plate

In order to protect the P326 when using on packages with hard and rough surface, the tool can be equipped with a wearing plate and a disk for level compensation.

The complete wearing plate together with disk and fastening screws can be ordered under item number P32.0170.

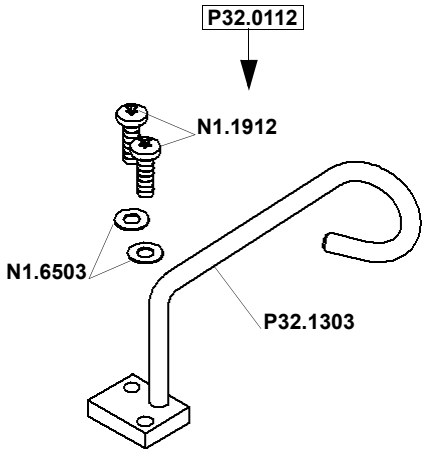


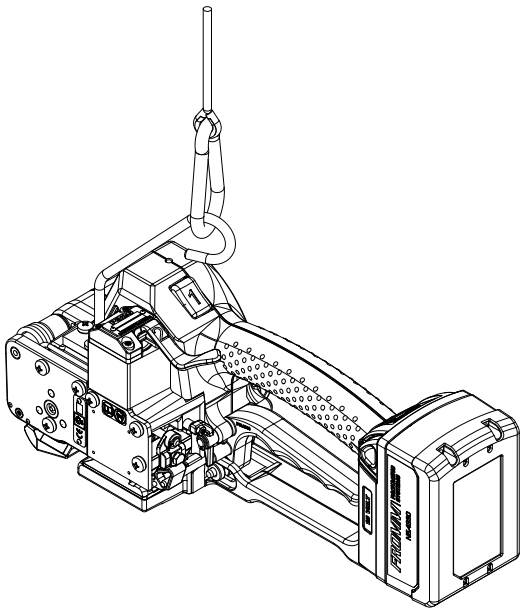
If the complete bottom side of the tool has to be protected, the plate P32.0168 must be used.

4.4 Suspension

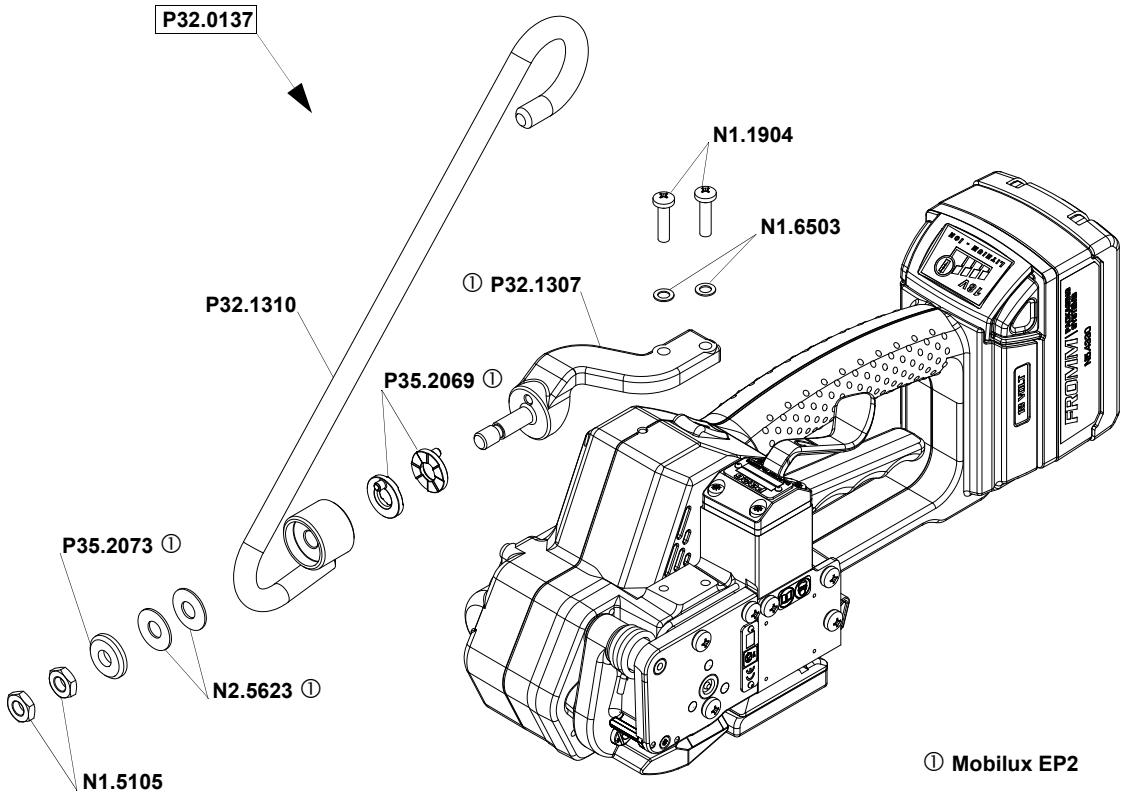
When working stationary the P326 can be suspended at a spring loaded balancer by using a suspension bracket.

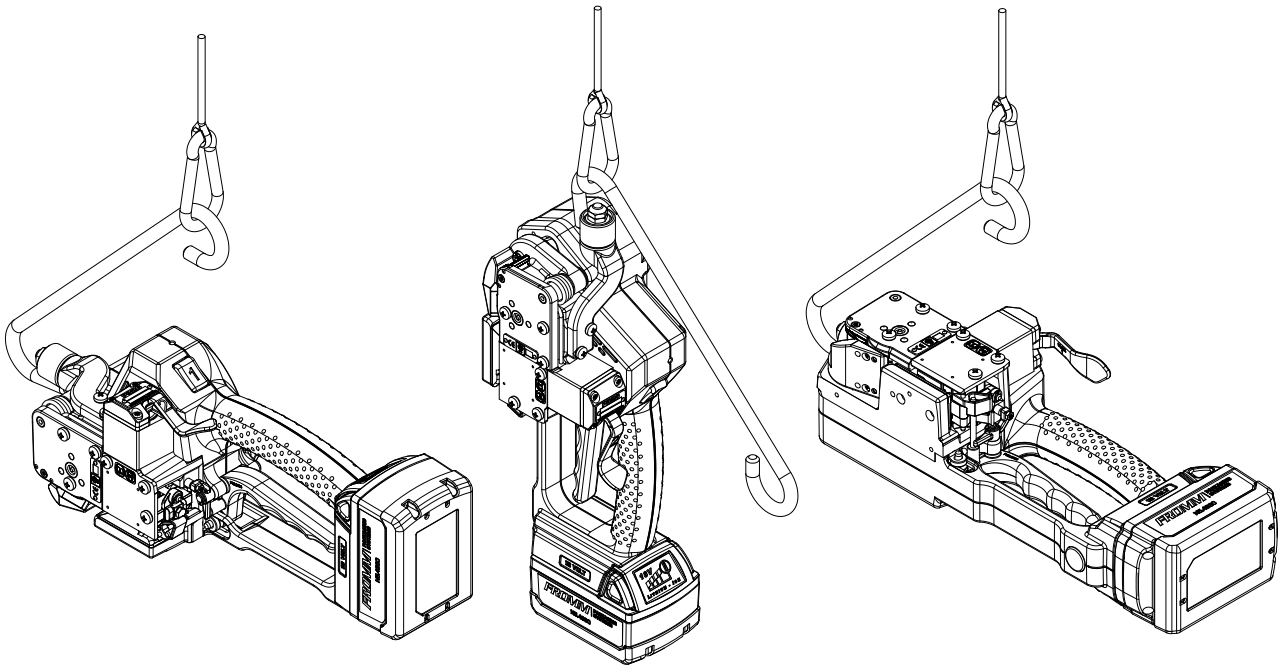
For working in normal position a stiff suspension bracket with screws and washers can be ordered under item number P32.0112.





For working in alternating positions a turnable suspension bracket with screws and washers can be ordered under item number P32.0137.

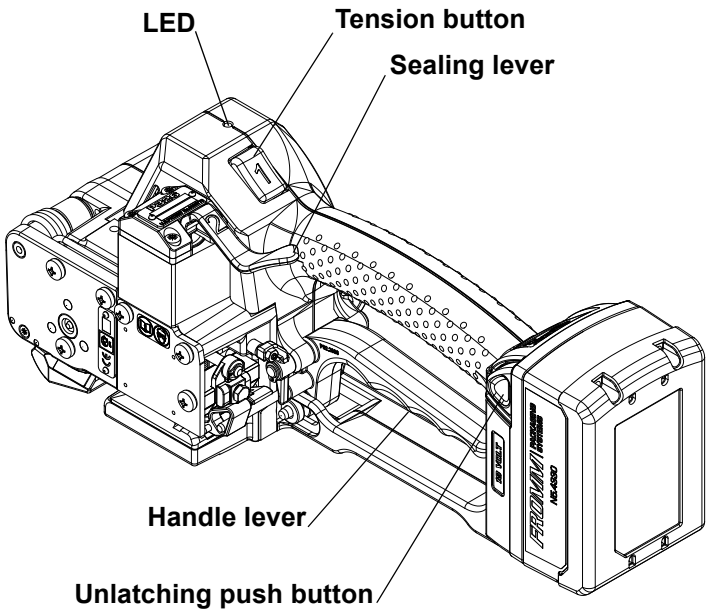




4.5 Turning button kit

For a remaining adjustment of tension force and welding time.
After exchanging of the turning buttons the adjustment can only be changed with the allen key (2mm) that comes with the kit. The kit can be ordered under the item number P32.2061.

5 OPERATING ELEMENTS



LED - Indication at the tool	
Green	During tensioning the LED lights green.
Green	During welding the LED lights green.
Yellow	Cooling time is running, the tool must not be removed from the strap.
Green	Cooling time is finished, the tool can be removed from the strap.
Red	Charge the battery.
Without indication	Power saving mode

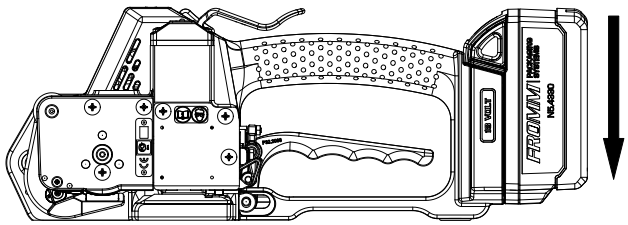
6 OPERATION

6.1 Installation

Do not expose power tools to rain or wet conditions!
The batteries are supplied partially charged.
Before the first use, the battery must be completely charged.
See separate operating instruction of the battery charger.
Never charge a damaged battery. Replace by a new one immediately.
Do not open batteries and store them only in dry and frost-proof rooms.
Do not store the battery pack together with metal objects (short circuit risk).
The maximum ambient temperature is 50°C.
Keep dry at all times.

Inserting the battery

Insert the battery from top to bottom into the tool until **both unlatching push buttons are engaged.**



When inserting the battery the LED - indication shortly lights green.

Removing the empty battery

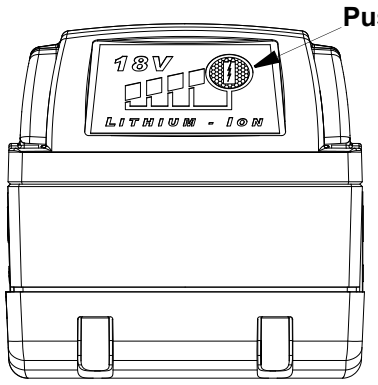
If the red LED starts lighting while a tensioning or welding procedure, the capacity of the battery is exhausted. All electric functions of the tool are blocked.

The seal efficiency is insufficient.
Warning! Straps with insufficient seal strength must be removed from the package!

The battery must be recharged.
Push the unlatching push buttons at both sides of the battery.
Push the battery out of the tool in the opposite direction of insertion.
When removing the battery the LED lights shortly red.

Displaying of the status of the battery charge

By pressing a button the status of the battery can be shown in four steps.
If four lamps are lighting the battery is full.
If only one lamp is lighting shortly the battery has to be charged.

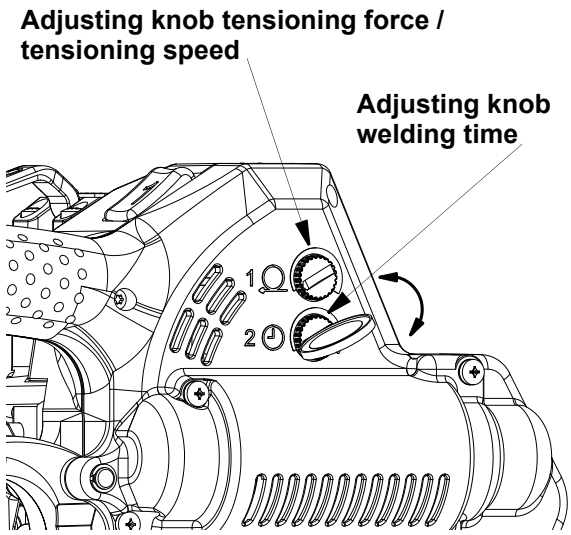


6.2 Adjustments

6.2.1 Preselecting of strap tension and tensioning speed

Do not adjust the tensioning force too high.
If the tensioning force is higher than the tensioning strength of the strap, the strap will tear while the tensioning.

Tensioning force and tensioning speed can be preselected with the upper adjusting knob.
Turning clockwise increases;
turning counter clockwise decreases the tensioning force and the tensioning speed resp..
The tensioning force on the minimum setting is 400 N (90 lbs) and it is increased on the maximum setting to 2400 N (540 lbs).
The tensioning speed on the minimum setting is 85 mm/s (3.3 inch/sec), it is increasing linear up to 190 mm/s (7.5 inch/sec) on the maximum setting.



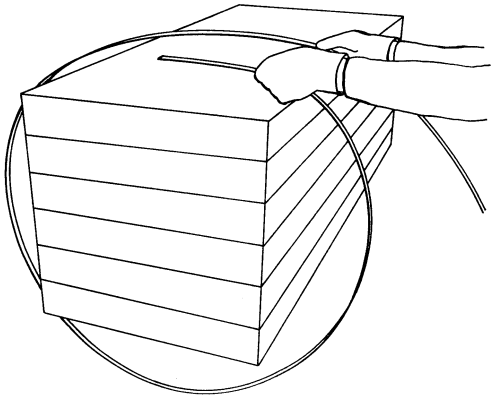
6.2.2 Adjusting the welding time

Depending on the size and quality of the strap, different welding times are required.
The welding time can be adjusted at the lower adjusting knob.
Turning clockwise increases,
turning counter clockwise decreases the welding time.

The adjustment knobs can be easily turned with a coin.

6.3 Feeding the strap around the package

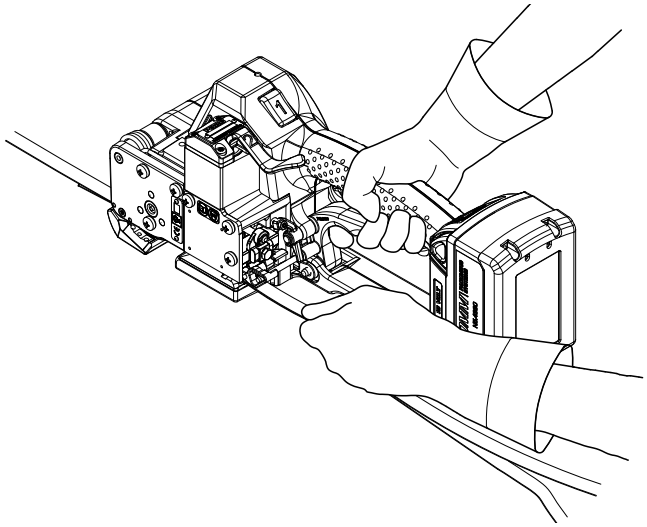
The strapping is fed around the package as illustrated.



Warning! The plastic strap which will be welded must be free from oil, grease and other dirt.
Dirty plastic straps can't be welded correct!

6.4 Inserting the strap

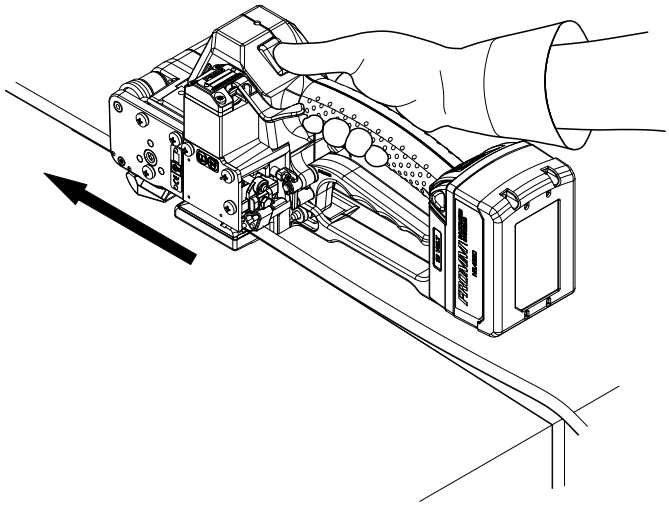
Pull up the handle lever firmly with your right hand.
Insert the two straps well aligned on each other into the strap guide using your left hand.
Release the handle lever.



6.5 Tensioning the strap

Press down the tension button and then release it again after the desired strap tension has been reached.
The tensioning operation can be interrupted and restarted at any time.
During tensioning the LED lights green.

Do not press the tension button after reaching the preselected tensioning.
Danger of strap breakage.



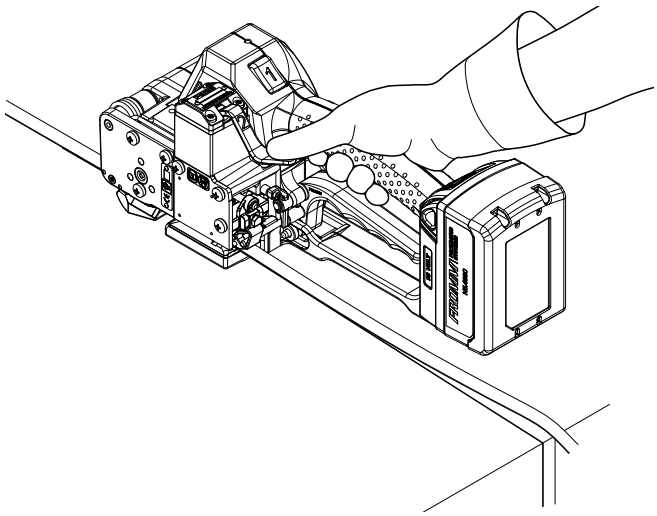
The tool must carry out a balance movement while tensioning.
Therefore:
- **Don’t hinder the tools movement in the signed direction.**

Disregard:
- **The feed wheel slips on the strap without tensioning it.**

6.6 Sealing of the joint

Press sealing lever down until it locks and let it go immediately.
The plastic strap is welded and cut off from the rest of the strap.
During the welding the LED lights green.

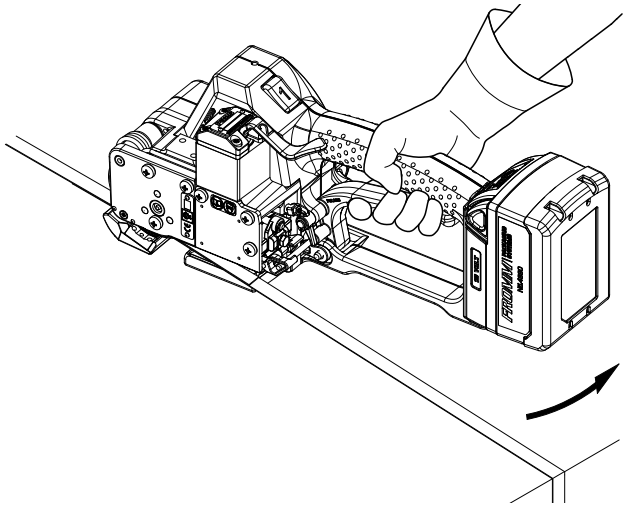
After elapsing of the adjusted welding time (see 6.2.2) the cooling time begins (LED lights yellow). During that time the tool must not be removed from the strap.
If the LED lights green again, the sealing cycle is finished.



The tool must not be removed from the strap as long as the cooling time is not finished. Disregard of this regulation is causing insufficient seal efficiencies, which can cause severe injuries.

6.7 Removing the tool

Pull up the handle lever,
pull the tool right / backwards and off the strapping.

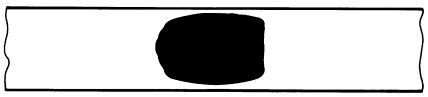


6.8 Seal - Control

A regular control of the seal is necessary. The seal can be examined visually.
Make a seal, peel it apart and examine it as follows:

Correct seal

The seal must be completely welded over the whole width of the strap on a length of ca. 19 mm. Minor quantities of fused plastic may overflow on sides.



Welding time too short

The plastic strap is not welded over the whole width of the strap. The seal efficiency is insufficient.
Warning! Straps with insufficient seal strength must be removed from the package! Adjust the welding time (see 6.2.2).

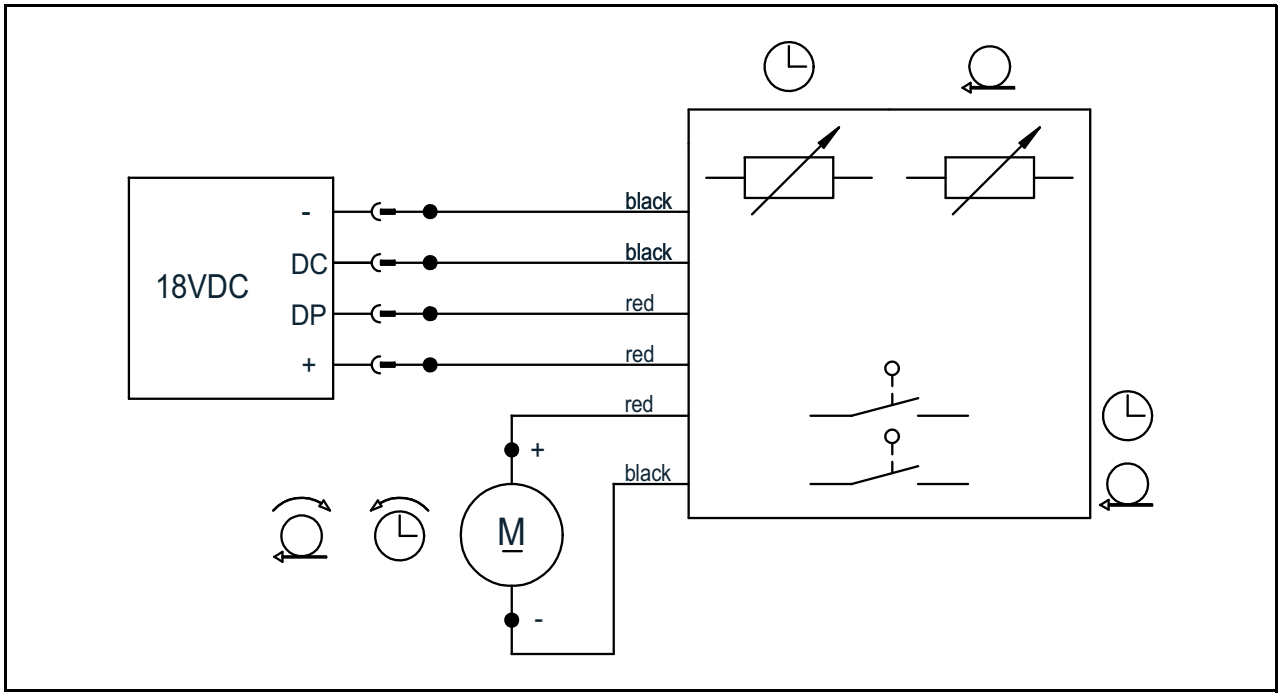
Welding time too long

If the welding time is too long the straps are overheated. The fused plastic overflows on both sides of the straps. The seal efficiency is affected.
Warning! Straps with insufficient seal strength must be removed from the package! Adjust the welding time (see 6.2.2).

7 CHART OF TYPES P326

Item No.	Model	Strap width	Strap thickness
43.2201	P326/10/0.40-0.64	10 mm / 3/8"	0.40-0.64 mm / .016 - .025"
43.2202	P326/10/0.65-1.05	10 mm / 3/8"	0.65-1.05 mm / .026 - .041"
43.2211	P326/11.1/0.40-0.64	11.1 mm / 7/16"	0.40-0.64 mm / .016 - .025"
43.2212	P326/11.1/0.65-1.05	11.1 mm / 7/16"	0.65-1.05 mm / .026 - .041"
43.2221	P326/12/0.40-0.64	12 mm	0.40-0.64 mm / .016 - .025"
43.2222	P326/12/0.65-1.05	12 mm	0.65-1.05 mm / .026 - .041"
43.2223	P326/12.7/0.40-0.64	12.7 mm / 1/2"	0.40-0.64 mm / .016 - .025"
43.2224	P326/12.7/0.65-1.05	12.7 mm / 1/2"	0.65-1.05 mm / .026 - .041"
43.2231	P326/13/0.40-0.64	13 mm	0.40-0.64 mm / .016 - .025"
43.2232	P326/13/0.65-1.05	13 mm	0.65-1.05 mm / .026 - .041"
43.2251	P326/15/0.40-0.64	15 mm	0.40-0.64 mm / .016 - .025"
43.2252	P326/15/0.65-1.05	15 mm	0.65-1.05 mm / .026 - .041"
43.2253	P326/15.5/0.40-0.64	15.5 mm	0.40-0.64 mm / .016 - .025"
43.2254	P326/15.5/0.65-1.05	15.5 mm	0.65-1.05 mm / .026 - .041"
43.2261	P326/16/0.40-0.64	16 mm / 5/8"	0.40-0.64 mm / .016 - .025"
43.2262	P326/16/0.65-1.05	16 mm / 5/8"	0.65-1.05 mm / .026 - .041"

8 ELECTRIC SCHEMATIC ELS.1044



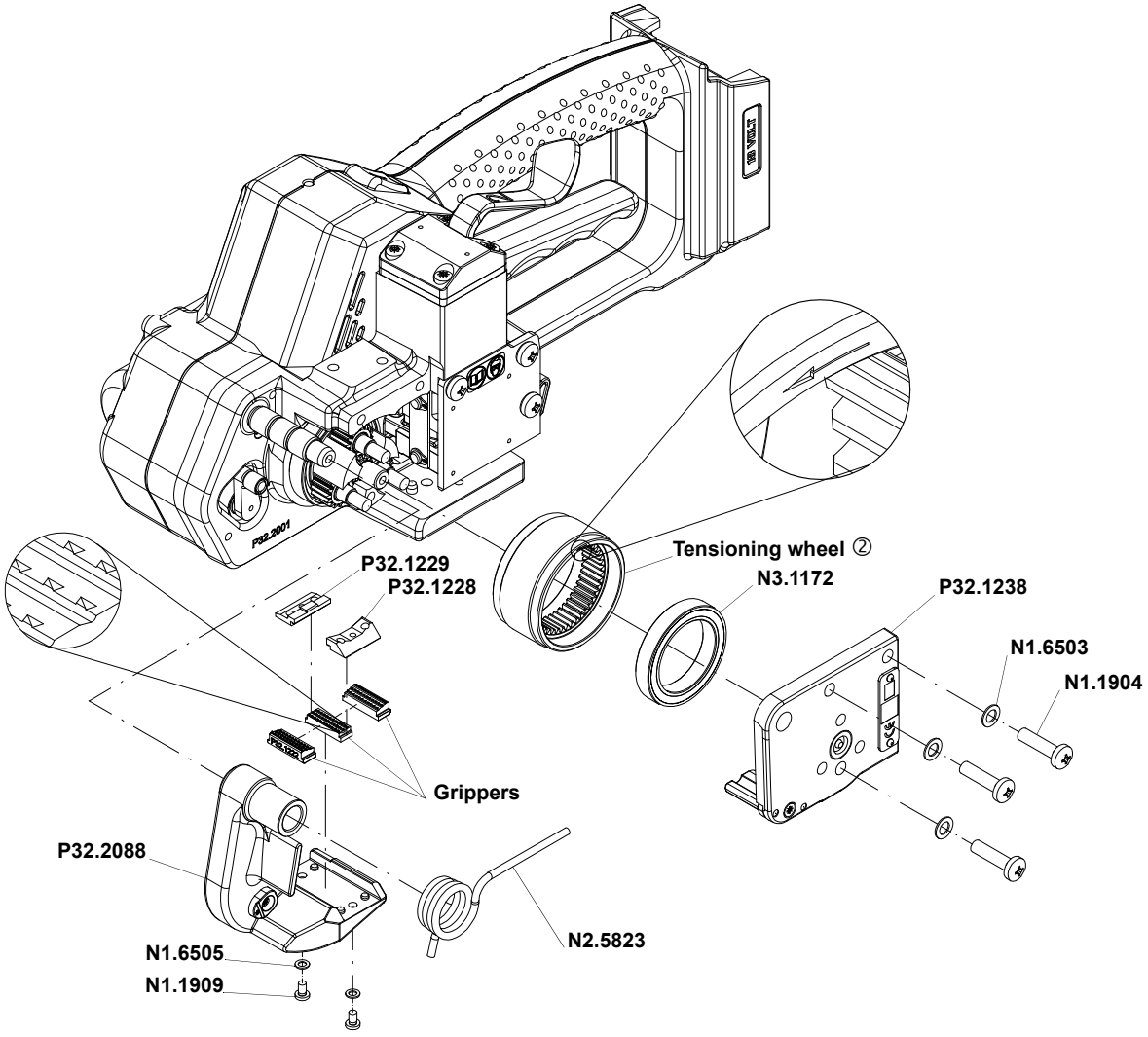
9 EXCHANGE OF WEARING PARTS

Remove always the battery from the tool before starting maintenance works.

9.1 Exchange of tensioning wheel and grippers

Disassembling

- Unscrew end cover P32.1238 and remove it;
- Remove the torsion spring N2.5823;
- Remove the tensioning body P32.2088;
- Remove the tensioning wheel together with the bearing N3.1172 from the tool;
- Unscrew the holders P32.1228 and P32.1229 and remove them from the tensioning body P32.2088;
- Remove the grippers from the tensioning body.



② **Molykote BR2 plus**

Assembling

Assembling in opposite order. Observe the following:

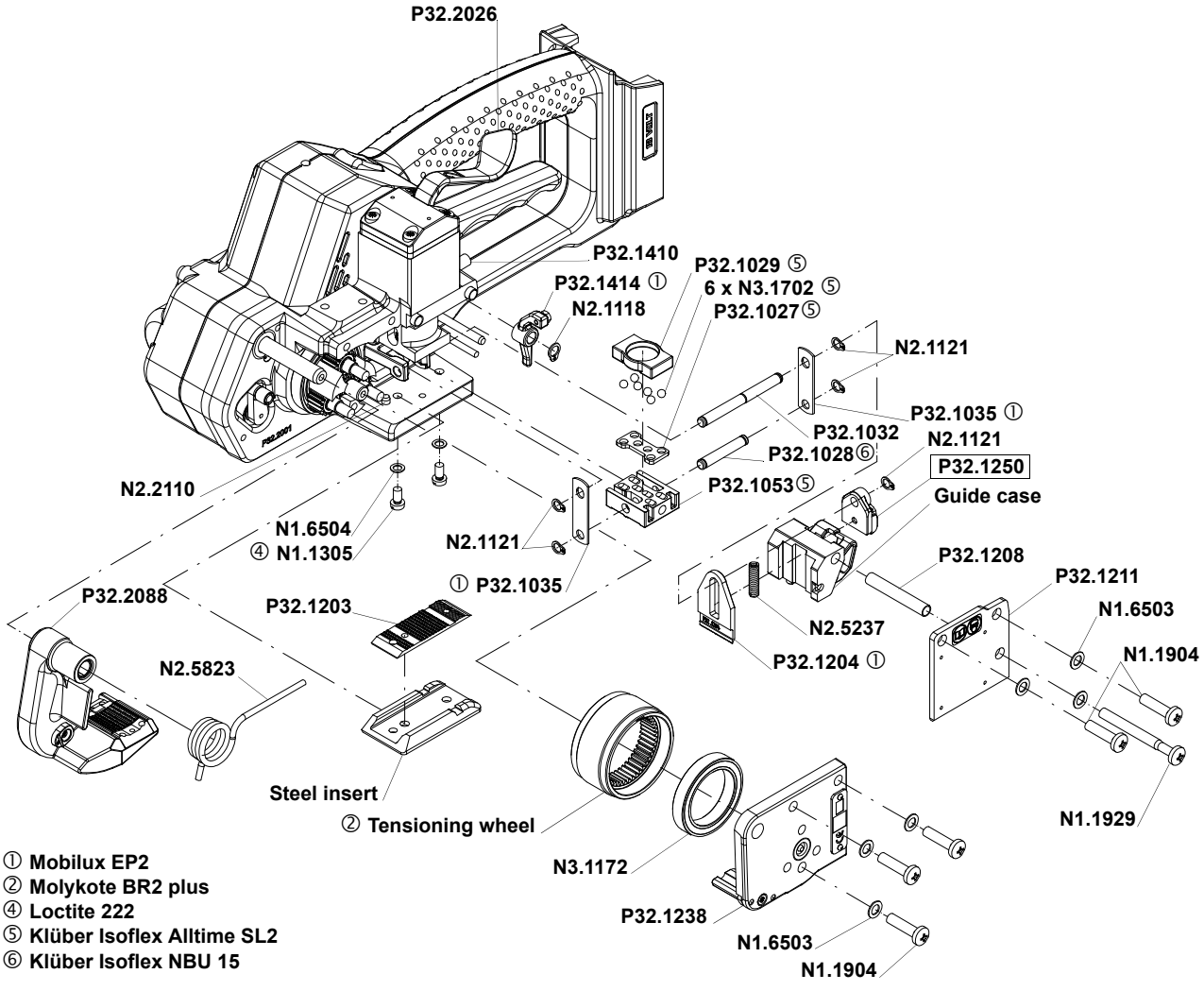
- Lubricate the internal toothing of the tensioning wheel with Molykote BR2 plus.

Observe the position of the tensioning wheel. The direction of rotation of the tensioning wheel is marked at the front of the tensioning wheel (see drawing). Observe the position of the grippers (see drawing).

9.2 Exchange of cutter, welding stop gripper and welding gripper

Disassembling

- Unscrew cover P32.1211 and remove it;
- Unscrew end cover P32.1238 and remove it;
- Remove the torsion spring N2.5823 and the tensioning body P32.2088;
- Remove the tensioning wheel together with the bearing N3.1172 from the tool;
- Disassemble the security ring N2.1118 and remove the lever P32.1414 from the handle shaft;
- **Don't** loosen screw N1.1553 at the coupler P32.1250.
- Disassemble the security ring N2.1121 from the coupler P32.1250, remove the coupler;
- Pull out the centering sleeve P32.1208 from the guide case to left, disassemble the guide case;
- Pull out the pressure spring N2.5237 with a screw driver from the cutter P32.1204;
- Remove the cutter from the driving pin P32.1032;
- Disassemble the screws N1.1305, lift slightly the welding stop gripper P32.1203 and the steel insert and remove them from the tool;
- Push the steel insert P32.1201 without welding stop gripper under the welding gripper P32.1053 until it touches the parallel pin N2.2110;
- Press down lever P32.2026, if the welding gripper does not sit on the steel insert, put a piece of plastic strap between welding gripper and steel insert.
- Disassemble the safety ring N2.1121 from the bolt P32.1028, remove the bolt from the welding gripper;
- Press in coupler P32.1410 in order to release the lever P32.2026 again;
- Pull out the steel insert with care to right under the welding gripper;
- Disassemble the security rings N2.1121 from the driving pin P32.1032, remove the driver P32.1035 from the driving pin;
- Lift the rocker P32.1024 behind the welding gripper with a screw driver, remove the welding gripper together with the ball cage P32.1027 and the balls N3.1702 from the tool;
- Lower the rocker, remove the thrust piece P32.1029 from the tool.



Assembling

Assembling in opposite order. Observe the following:

Pay attention to the fitting position of the cutter (see drawing).
Safe the screws N1.1305 with Loctite 222.
Observe the position of the tensioning wheel. The direction of rotation of the tensioning wheel is marked at the front of the tensioning wheel (see 9.1).

Lubrication

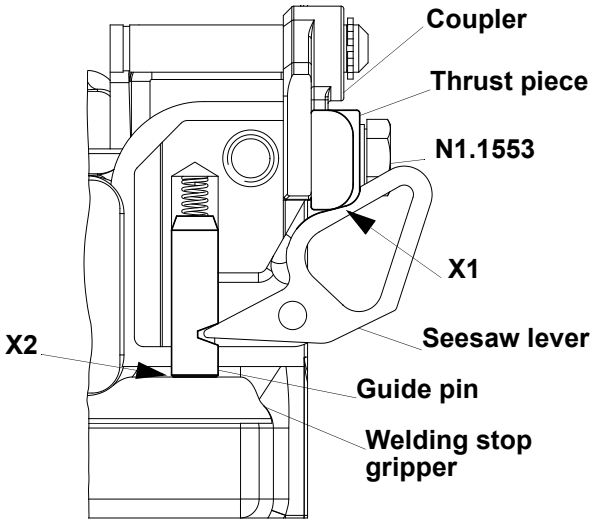
- Lubricate the rocker and the bolt P32.1028 in the area of the welding jaw with Klüber Isoflex NBU 15.
- Lubricate the balls, ball cage and the running surface of the balls on the welding gripper with Klüber Isoflex Alltime SL2.
- Lubricate the cutter and the driver with Mobilux EP2.
- Lubricate the internal toothing of the tensioning wheel with Molykote BR2 plus.

9.3 Adjustment of the coupler P32.1250

The coupler is adjusted in our works.
In case of replacing the seesaw lever, the coupler or the lever body, the coupler has to be readjusted.
Procedure as follows:

The battery is removed from the tool.
The coupler is fitted into the tool.

- Loosen screw N1.1553.
- Displace thrust piece P32.1252, so that it touches the two seesaw levers without moving them.
- Retighten screw N1.1553.



Control:

The thrust piece must touch the seesaw levers (X1).
Both guide pins must sit on the welding stop gripper(X2).

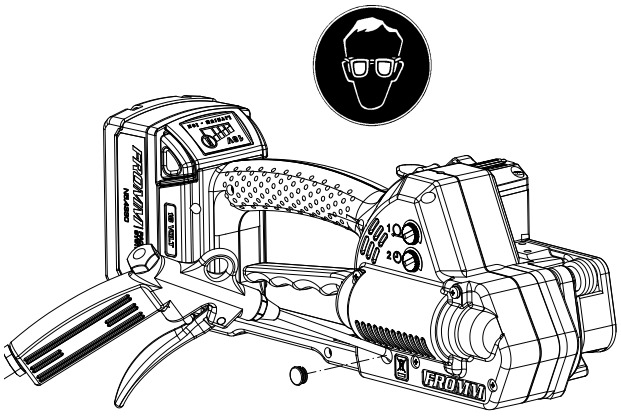
10 SERVICE

Servicing and repair work must only be carried out by authorized service centres.
If the tool breaks down or does no longer operate do not disassemble it. Send it fully assembled to the local service centre (see name and address on the rear page of this manual). Use original packing.
The battery powered plastic strapping tool P326 is a high performance tool. We strongly recommend you to have it serviced by an authorized service shop after 12 months at the latest if used one shift per day. If used two or more shifts per day the tool has to be serviced after a shorter period of time.

11 CLEANING

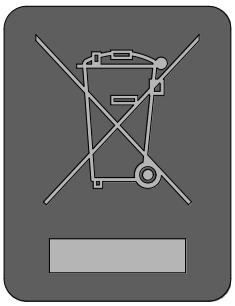
Clean strap gripping parts from strap abrasion regularly using compressed air.
Thus also the cover can be removed and with a suitable air gun air been blown on the welding elements.
Do not use any mechanical tool for cleaning.

When cleaning the surface of the tool do not use water or aggressive solvents!



12 DISPOSAL

The machine, accessories and packaging should be sorted for environmental-friendly recycling.



Only for EC countries:

Do not dispose of power tools into household waste! According the European Guideline 2002/96/EC for Waste Electrical and Electronic Equipment and its implementation into national right, power tools that are no longer usable must be collected separately and disposed of in an environmentally correct manner.

13 APPROPRIATE USE

The tool model P326 has been designed to strap packages with plastic strapping exclusively.
The warranty / liability excludes:

- non appropriate use of the tool,
- disregard of directions in the operation manual,
- disregard of control- and maintenance instructions.